DOCUMENT RESUME

ED 112 725 HE 006 658

AUTHOR	Christoffel, Pamela; Rice, Lois
TITLE	Federal Policy Issues and Data Needs in Postsecondary Education. Final Report to the National Center for Education Statistics.
INSTITUTION	College Entrance Examination Board, Washington, D.C.; National Center for Education Statistics (DHEW), Washington, D.C.
REPORT NO	NCES-75-222
PUB DATE	75
CONTRACT	OEC-0-74-2126
NOTE	107p.
AVAILABLE FROM	Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 ($1.85)
EDRS PRICE	MF-$0.76 HC-$5.70 Plus Postage
DESCRIPTORS	Case Studies (Education); *Data Analysis; Data Collection; Educational Equality; Educational Planning; *Educational Policy; Educational Research; *Federal Aid; Federal State Relationship; *Higher Education; *Post Secondary Education; School Policy; Statistical Surveys
IDENTIFIERS	*Common Core of Data Program

ABSTRACT

Major policy issues are delineated and specific categories of postsecondary education data identified that are needed at the federal level to address these issues. This report constitutes a significant phase in the Common Core of Data (CCD) program which is a major new concept of the National Center for Education Statistics. CCD provides an integrated and interlocking system of educational statistics to meet federal, state, local, and institutional needs for planning and management. Federal policy issues include providing equal educational opportunities, meeting manpower needs, promoting recurrent education, stimulating educational diversity, and encouraging research in the national interest. The data needs reflect the broad dispersal of federal programs supporting postsecondary education and the important policy issues underlying them. The identified data needs call for varied collection methodologies, including surveys, samples, and case studies. NCES is suggested to provide a data coordination role as a national center with expanded operations and influence, as well as coordination with states and the postsecondary education community of associations, institutions, and individual researchers. (LBH)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED112725

NCES 75-222

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

FEDERAL POLICY ISSUES AND DATA NEEDS IN POSTSECONDARY EDUCATION

Final Report
to the
National Center for Education Statistics

by
Pamela Christoffel
and
Lois Rice

This report was prepared by the Washington Office of the College Entrance Examination Board under contract No. OEC-0-74-2126 with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects for the Government are encouraged to express freely their professional judgment. This report, therefore, does not necessarily represent positions or policies of the Office of the Assistant Secretary for Education, and no official endorsement should be inferred.

HE 00 6658

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Caspar W. Weinberger, *Secretary*

Education Division
Virginia Y. Trotter, *Assistant Secretary for Education*

National Center for Education Statistics
Francis C. Nassetta, *Acting Administrator*

NATIONAL CENTER FOR EDUCATION STATISTICS

"The purpose of the Center shall be to collect and disseminate statistics and other data related to education in the United States and in other nations. The Center shall . . . collect, collate, and, from time to time, report full and complete statistics on the conditions of education in the United States; conduct and publish reports on specialized analyses of the meaning and significance of such statistics; . . . and review and report on education activities in foreign countries."--Section 406(b) of the General Education Provisions Act, as amended (20 U.S.C. 1221e-1).

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1975

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 - Price $1.85

FOREWORD

This report delineates the major policy issues in federally supported postsecondary education programs and identifies specific categories of postsecondary education data needed at the Federal level to address these issues. The report constitutes an important phase in the Common Core of Data (CCD) program which is a major new concept of the National Center for Education Statistics. CCD provides an integrated and interlocking system of educational statistics to meet Federal, State, local, and institutional needs for planning and management.

Guidance in the preparation of this report was provided by Ron Pedone and Andrew Pepin of the National Center for Education Statistics.

Marjorie Chandler, Director
Division of Statistical
Information and Studies

CONTENTS

		Page
	Foreword	iii
I.	Introduction	1
II.	Postsecondary Education Programs at the Federal Level	3
III.	Federal Policy Issues	7
IV.	Federal Data Needs	25
V.	A Brief Comparison of NCES Current Postsecondary Data Collection With Data Needs	39
VI.	A Suggested Role for NCES in Postsecondary Education	45

APPENDIXES

Appendix A.--Listing of Federal Postsecondary Education Programs 53

Appendix B.--Outlines of Postsecondary Programs, Policy Issues, and Data Needs 65

Appendix C.--NCES Data-Collection Instruments and Reports Reviewed 103

Appendix D.--Office of Education Nonoperative Programs 107

Bibliography 109

I. INTRODUCTION

A. Background

The Education Amendments of 1974 transferred the National Center for Education Statistics (NCES) from the Office of Education (OE) into the Office of the Assistant Secretary for Education and stated that NCES shall "collect, collate and, from time to time, report full and complete statistics on the conditions of education in the United States." The legislation requires that NCES submit to the Congress an annual statistical report for the two preceding and three succeeding fiscal years. NCES shall participate with other Federal agencies in forming an education data "consortium" and shall provide all interested parties, including public and private agencies and individuals, "direct access" to data collected.

The tasks are not simple or easy. However, NCES has now received a congressional mandate to move beyond the collection of basic education data into a broader realm of examining the conditions of education.

Even before the Education Amendments of 1974, NCES had begun to move beyond simple data gathering. Its Common Core of Data (CCD) Program sought to respond to many of the broad education data needs of the Congress, the Federal Government, and the education community. As noted in the Office of Education's Request for Proposal which initiated this study, the CCD Program "is a major new concept of the U.S. Office of Education intended to replace the current uneven and largely inadequate provision for education statistics in the 50 States, six outlying areas, and the District of Columbia, with an integrated and interlocking system of education statistics to meet Federal, State, local, and institutional needs for planning and management."

B. The Tasks of This Study

The Washington Office of the College Entrance Examination Board received a request from NCES to assist it in this overall CCD effort in the area of postsecondary education.1/ This College Board study for NCES examines Federal post-

---

1/ For the purposes of this study, NCES provided a definition of a postsecondary education institution as follows: "A postsecondary education institution is defined as an academic, vocational, technical, home study, business, professional, or other school, college or university, or other organization or person offering educational credentials or offering instruction or educational services (primarily to persons who have completed or terminated their secondary education or who are beyond the age of compulsory school attendance), for attainment of educational, professional, or vocational objectives."

secondary education programs in all relevant agencies, Federal policy issues, and Federal data needs. The task included a survey of over 400 Federal postsecondary programs in 25 separate Federal departments and agencies. From this survey, a 1,200-page report titled A Compilation of Federal Programs Financing Postsecondary Education, An Update, Fall 1974, has been delivered to NCES separately from this study report.

Using the array of Federal programs supporting postsecondary education as a base, the College Board next was requested to identify the major postsecondary issues facing Federal policymakers and administrators and to specify the categories of postsecondary education data needed to enable them to address these issues. To accomplish these tasks, the Washington Office of the College Board:

1. reviewed the major literature sources pertinent to Federal policy issues and data needs;

2. interviewed Federal officials and experts in this field;

3. convened a conference of postsecondary education experts to meet with interested Federal officials and attempt definitions of Federal issues and data needs; and

4. reviewed the Compilation of Federal Postsecondary Education Programs for inherent policy issues and data needs.

This report distills information and recommendations received from these sources. Section II surveys briefly the Federal role in postsecondary education; section III defines and documents the Federal policy issues underlying current and future Federal efforts in this area; section IV describes categories of data Federal officials need to respond to questions raised by these policy issues. A brief comparison of NCES' current postsecondary data collection efforts with identified Federal data needs follows in section V. The final section addresses challenges and opportunities of the Education Amendments of 1974 and presents a possible role for NCES in postsecondary data collection and coordination. Appendixes A and B outline the Federal programs, policy issues, and data needs for postsecondary education; appendix C lists the NCES reports and instruments used in preparation of section V of this report; appendix D describes efforts to compile a list of nonoperative postsecondary programs.

Those who have previously pointed out needed data at the Federal level are cited in this report. What is significant in this document is that postsecondary education data needs have been derived in a unique way. Matrixes including current Federal programs and Federal policy issues have been used to identify needed postsecondary data, thus providing NCES with a rational framework for data-collection efforts. NCES will thus have the opportunity to review all its data-collection activities in postsecondary education, helping it meet the challenges of the Education Amendments of 1974.

II. POSTSECONDARY EDUCATION PROGRAMS AT THE FEDERAL LEVEL

A. The Development of a Federal Role in Postsecondary Education

Historical trends, political pressures, and the accretion of largely unrelated national policy decisions have combined to shape the role of the Federal Government in postsecondary education, traditionally a State responsibility.

Federal support for colleges and universities began with the establishment of West Point, the first Federal college. The first legislative authorization for postsecondary education was the Morrill Act of 1862, which provided endowment and other funds for the Nation's land-grant colleges. For the next 80 years, until World War II, the Federal role in postsecondary education involved a relatively modest investment of funds and slight Federal influence.1/

Following World War II, Federal support increased substantially. Funds made available through the G.I. Bill for veterans' education increased postwar enrollments at most colleges and universities. Increased Federal funds began to flow to postsecondary institutions, initially in support of research directed toward solving problems of national defense, but later toward an array of studies, including research into peacetime uses of atomic energy and other areas of basic and applied science.

Growing Federal interest in research for the needed quantity and quality of scientific manpower was also manifested. The Federal Government expected colleges and universities to produce more and more highly trained individuals. National concerns, intensified during the sputnik era, prompted the passage of the National Defense Education Act. Postsecondary education was now encouraged to train more college faculty, and the first low-interest Federal loans were made available to college students.

The 1960's saw a rapid expansion of Federal programs benefiting postsecondary education. Institutions received construction assistance. The disadvantaged received Federal scholarships and work-study assistance. Federal funds for research reached their highest level. By 1970, postsecondary education had become closely entwined with such national commitments as development of new knowledge through

---

1/ The Second Newman Report notes that by 1940 "total Federal funding was less than $50 million per year." The Second Newman Report: National Policy and Higher Education, (Cambridge, Mass.: The MIT Press, 1973), p. 65.

research, the training of manpower for the economy, and expansion of equal opportunity. The Federal role had become substantial.

B. Current Federal Postsecondary Programs

The Compilation of Federal Programs Financing Postsecondary Education, An Update, Fall 1974, described on page 2, lists over 400 programs. Approximately 25 separate Cabinet-level departments and agencies, from the Department of Agriculture to the Veterans' Administration, administer them. Interestingly, the Department of Health, Education, and Welfare provides less than half and the Office of Education less than a quarter of the total Federal dollars received by postsecondary institutions and students. The following table, compiled for the National Commission on the Financing of Postsecondary Education, illustrates sources, amounts, and percents of Federal postsecondary support.

Selected Postsecondary Education Outlays by Major Participating Agencies: Fiscal year 1972

Agency	Amount (in millions)	Percent of total
Department of Health, Education, and Welfare	$4,090.4	44.3
Veterans' Administration	2,006.5	21.7
Department of Defense	1,082.6	11.7
Department of Labor	898.2	9.7
National Science Foundation	390.2	4.2
All other agencies	769.0	8.3
TOTAL	$9,236.9	100.0

NOTES: Data supplied by the individual agencies.
Percents do not add to 100.0 because of rounding.

Source: National Commission on the Financing of Postsecondary Education, Financing Postsecondary Education in the United States. (Washington, D.C.: Government Printing Office, December 1973), p. 107.

Federal program purposes and financing mechanisms vary widely. (Appendix A lists programs; appendix B (part I) outlines programs by Federal goal and method of financing.) Many programs provide categorical aid to postsecondary education institutions. Purposes vary widely and include, for example, agricultural research, innovative approaches to the education of the handicapped, and training professionals in the study and control of water pollution. Students can receive financial assistance for various reasons; e.g., if they are veterans or willing to study in a field of special interest to the Federal Government, such as mental health, law enforcement, or urban mass transportation.2/ Indians, Social Security beneficiaries, or persons related to miners with black-lung disease are eli-

2/ Over 160 of the programs provide funds for teacher training of various kinds.

gible as students for special Federal support. The Federal Government runs a number of postsecondary institutions itself, including the military service academies, the merchant marine academy, a staff college for civil defense personnel, and a junior college in Panama. Federal funds also support Haskell Junior College (for Indians), Howard University, Gallaudet College for the deaf, maritime schools in six States, and Federal City College (through the District of Columbia budget). The Federal Government even provides assistance "in kind" to postsecondary institutions, ranging from loans of machine tools and dispersal of surplus Government property to provision of films for educational purposes. In addition, many other diverse Federal programs support postsecondary education.

C. The Future of Federal Support

The vast range of Federal postsecondary programs has been called a shopping list in search of a rationale. No coherent Federal postsecondary education policy exists, just as no single Federal agency administers a majority of the programs. Surveying the array of the programs, the Newman Task Force pointed out that "a sense of legitimacy for an issue of educational policy is often created by the existence of a Federal program."3/

However, the programs themselves imply broad principles of Federal support for activities in the national interest--including equality of opportunity, economic growth, upgrading of manpower, and research of national importance.

Still, in the last few years, groups and individuals have called for a better definition of the Federal role in postsecondary education. Some argue that the array of Federal programs hides a disarray of Federal policies. The Second Newman Report states:

> ...not since sputnik has the American public engaged in a thoughtful, extensive discussion of the national interest in postsecondary education. Student unrest became an important 'political' issue in the late 1960's, as did the question of access for minority students. In the early 1970's the institutions of higher education themselves raised the issue of their state of 'financial' distress. Yet none of these issues provoked a thoughtful debate about national "educational policy. 4/

Heated debate over the merits of Federal support to postsecondary institutions versus assistance to students preceded the passage of the Educational Amendments of 1972. The Congress reached a compromise agreement which accepted that student assistance would be a major Federal mechanism for support of postsecondary education. However, during the extensive review of postsecondary education in the Congress' work on the Education Amendments of 1972, discussion

---

3/ Ibid., p. 66.
4/ Ibid., pp. xx-xxi.

centered on postsecondary programs administered by the Office of Education. The broader Federal role--including other HEW programs, and National Science Foundation, Veterans' Administration, Department of Labor, and other programs--was not debated at that time, nor has it been since.

Postsecondary education today needs a definition of Federal policy. The growth in enrollments is slowing. In some areas Federal funding for colleges and universities is declining. New types of students are demanding that "educationally relevant" postsecondary education should be available to them. Oversupplies of teachers and college faculty have forced a reassessment of postsecondary education's role as a trainer of skilled manpower. Financial distress has become a familiar complaint of postsecondary institutions.

Predictable trends include an increase in recurrent postsecondary education at all age levels and experimentation with new curriculums, new teachers, and new types of schools. Efforts must be made to promote equality of opportunity at all levels of the educational system. Debates about the age of majority indicate that student assistance programs may have to be substantially revised. Career education will be emphasized at the postsecondary level.

Future directions for the Federal role in postsecondary education are certain to be a major congressional concern during 1975-76, when much of the higher education legislation administered by the Office of Education expires. The role of the Federal Government will be examined; program impact and effectiveness will be assessed. Postsecondary education must face the realities of increasing costs, new students seeking new types of education, and answer basic questions about the validity of college degrees in the economic marketplace.

The following chapter examines five broad areas which encompass the major policy issues confronting the Federal Government now and will in the near future.

III. FEDERAL POLICY ISSUES

A. Identification of Postsecondary Policy Issues

The identification of major Federal policy issues included three major steps:

(1) identification and examination of operating Federal programs supporting postsecondary education;

(2) review of recent major policy reports, including Carnegie Commission, Newman Task Force, Committee on Economic Development, and National Commission on the Financing of Postsecondary Education reports, and other relevant publications.

(3) discussions about the identification of policy issues with knowledgeable Federal officials, congressional staff, and others.

On June 25, 1974, the College Board convened a meeting of postsecondary education experts to discuss issue identification (and related data needs) with representatives from HEW and the Congress. This meeting clarified some important issues and helped project staff identify policy issues and data needs. Conference findings were selectively combined in the compilation of a comprehensive description of the major issues facing Federal policymakers. These issues have been grouped into five broad categories pertinent to operating programs and reflecting recent reports on postsecondary education. They include:

(1) providing equal educational opportunity;

(2) meeting manpower needs;

(3) promoting recurrent education;

(4) stimulating educational diversity; and

(5) encouraging research in the national interest.

The identification of these policy categories is not new. Chancellor Ernest L. Boyer, State University of New York, recently identified three national policy concerns: (1) promotion of equality of access, (2) support of key professional

needs, and (3) stimulation of research in high priority areas.1/ The National Commission on the Financing of Postsecondary Education described eight objectives for postsecondary education, all encompassing policy issues relevant to the Federal Government: (1) student access, (2) student choice, (3) student opportunity, (4) educational diversity and flexibility, (5) institutional excellence, (6) institutional accountability, and (8) adequate financial support.2/ The Second Newman Report and the report of the Committee for Economic Development stressed similar concerns.

The following section examines each policy category individually, defining the category and its inherent issues. These categories are not mutually exclusive; policy issues overlap among several of them.

B. Description of Individual Policy Categories

1. Equal Educational Opportunity

In the 1960's equal educational opportunity became a primary goal of Federal policy. It has been defined as the right of all individuals, regardless of race, age, income, or other characteristics, to have access to the postsecondary education best suited to their own purposes, needs, abilities, and aspirations. Dr. Patricia Cross was especially perceptive. She argued that equal educational opportunity did not mean simply sending everybody off to college in the same old fashion, and stated that "Equal opportunity does not mean that all students are exposed to a standard body of information, but that each individual is helped to develop the capabilities to solve the problems that are of importance to him or her."3/

The Federal policy goal most often cited by the literature, postsecondary education experts, and Federal officials themselves is probably equal opportunity. The Committee on Student Economics asserted that its basic assumption and overriding recommendation was "that the Nation will and should accelerate its effort to expand the opportunities for postsecondary education."4/ The Carnegie Commission has made similar statements.

Equal opportunity is, of course, still an unrealized goal. As one report put it, "the poor, even those of highest ability, do not enter higher education at the same rate as the rich. Minority students continue to have far less chance of entering and remaining in college than majority students. Equal opportunity

---

1/ In D. W. Vermilye, ed., The Future in the Making. (San Francisco: Jossey-Bass, 1973), p. 39.

2/ The National Commission on the Financing of Postsecondary Education, Financing Postsecondary Education in the United States. (Washington, D.C.: Government Printing Office, 1973), p. 54.

3/ In D. W. Vermilye, ed., op. cit., p. 90.

4/ Report of the Committee on Student Economics. (New York: College Entrance Examination Board, 1972), p. 3.

still remains the great unfinished business of the seventies."5/

Equal opportunity policies encompass three areas: access (initial entry into the postsecondary system); choice (both institutional and curricular); and opportunity for individuals to continue in education until they achieve their objectives.6/

a. Equal access

Equal access means equalization of enrollment rates by race, sex, and income, and also equalization in the timing of enrollments (the problem of delayed entrance) and in enrollment status (part-time versus full-time).

The Federal Government uses student assistance programs as the principal vehicle to improve access to postsecondary education. The National Commission on the Financing of Postsecondary Education estimated that in 1972 nearly 30 percent of the total local, State, and Federal funds supporting postsecondary education were directed, mainly through student aid programs, toward the improvement of access.7/ Talent Search, Upward Bound, Basic Educational Opportunity Grants, and National Direct Student Loans are among OE programs designed to provide equality of access to postsecondary education. In addition, funds for Social Security beneficiaries and G.I. Bill veterans have the same focus. Other Federal programs are also directed toward this goal. But Census statistics show that equal access has not yet been achieved, despite these large expenditures of government funds. The table below illustrates the continuing problem of participation rates of low-income students in postsecondary education.

Primary Families With Dependent Members 18 to 24 With Incomes Under $3,000
(Constant 1972 dollars)

Year	Number of families with enrolled dependents (thousands)	Percent of families with enrolled dependents
1967	87	13.1
1968	103	15.9
1969	99	16.5
1970	91	13.9
1971	99	14.0
1972	116	14.8

Source: Bureau of the Census, "Current Population Reports," p-20, No. 260, p. 5.

5/ Toward Equal Opportunity for Higher Education. (New York: College Entrance Examination Board, 1973), p. 6.

6/ National Commission on the Financing of Postsecondary Education's Report (op. cit.): pages 55-56 discuss these areas.

7/ Ibid., p. 134.

Federal officials face a clear policy issue--how can the Federal Government provide support to postsecondary education, to students and/or institutions, to ensure that equality of access is achieved? In particular, what kinds of programs can be developed or expanded at the Federal level to accomplish this objective? What incentives must the Federal Government provide to the States to bring about equal access?

The Carnegie Commission points out that those now unable to secure postsecondary education because of work schedules, geographic location or family responsibilities also need increased access.8/ The Federal Government must provide improved access for a broader population; more adult women, senior citizens, and others will seek postsecondary education.

b. Equal Choice

The National Commission on the Financing of Postsecondary Education (NCFPE) defined this goal as follows: "Each individual should have a reasonable choice among those institutions of postsecondary education that have accepted him or her for admission."9/ Others argue strongly for a broader definition. The Panel on Financing Low-Income and Minority Students in Higher Education calls for "equity in the distribution of minority and poverty students, among differing types of higher education institutions, providing them collegiate options that meet their individual interests, needs, and abilities."10/ One NCFPE commissioner, Tim Engen, argues that "a choice of program offerings that is responsive to student needs, desires, and capabilities supercedes the importance of institutional choice."11/

Percent Distribution of Full-Time Freshmen Among Types of Institutions, Fall 1973

	2-year colleges		4-year colleges		Universities	
	Public	Private	Public	Private	Public	Private
All incomes	38	3	20	16	18	5
Less than $3,000	54	4	17	15	7	2
$3,000 to $5,999	52	3	19	15	9	2
$6,000 to $9,999	47	3	19	15	13	3
$10,000 to $14,999	42	2	20	14	17	3
$15,000 to $19,999	35	3	22	15	21	5
$20,000 to $24,999	29	2	22	16	24	6
More than $25,000	21	3	17	23	25	11

NOTE: Rows may not add to 100 because of rounding.
Source: Computed from ACE, "National Norms," Fall 1973.

8/ In Less Time, More Options. (New York: McGraw-Hill, 1971), p. 20.

9/ In Financing Postsecondary Education..., op. cit., p. 55.

10/ In Toward Equal Opportunity, op. cit., p. 8.

11/ In Financing Postsecondary Education..., op. cit., p. 378.

As the table on the preceding page indicates, institutional price is a major barrier to equal choice of institutions. Students from low- and moderate-income families tend to enroll in low-cost 2-year institutions.

The Federal Government must make complex policy decisions if it is to achieve student choice of institution. Some insist that equal opportunity cannot be achieved unless student choice is addressed at the same time as student access. Equal educational opportunity, they maintain, means more than simply assuring entrance to some postsecondary institution. Too often, disadvantaged students have to choose public 2-year institutions because of their lower costs, when their educational needs and abilities would be better served by some other type of post-secondary institution. The first issue, then, concerns what the Federal role should be.

Second, the alternative mechanisms for promoting student choice present important policy issues for the Federal Government. The operations of the Supplementary Education Opportunity Grant program support the goal of student choice to some extent. Should student aid programs be expanded to enable disadvantaged students to attend higher-priced institutions? Should institutional support programs that encourage high-priced institutions to lower their charges to certain students be developed? Should incentives be provided to States to promote the equal opportunity goal of student choice? These are among the issues facing Federal policymakers at this time.

c. Opportunity

The NCFPE has defined opportunity as making available "academic assistance and counseling that will enable each individual, according to his or her needs, capability, and motivation to achieve his or her educational objectives," noting "it is only when opportunity for achievement is assured that the objectives of access and choice have real meaning."12/

Opportunity has been more broadly defined as the right to continue through the educational levels as long as one's abilities permit. This includes retention and transfer to upper division programs and entrance into graduate and professional institutions. Behind the statistics showing increased enrollment, the Newman Task Force found a "major phenomenon, the surprisingly large and growing number of students who voluntarily drop out of college."13/ Several factors, including lack of financial assistance and dissatisfaction with courses and teachers, appear to contribute to attrition. The key factor is that many dropouts are in the groups that Federal equal opportunity programs encouraged to enter postsecondary education. Dropouts are too often--but certainly not always--disadvantaged and poor.

12/ Ibid., p. 56 and p. 154.

13/ The Second Newman Report, op. cit., p. xi.

The Panel on Financing Low-Income and Minority Students called for equalization in postsecondary student retention rates.14/ The Newman Task Force recommended the development of new educational options to motivate students to complete their education; others called for special efforts to provide continuing financial assistance to students beyond the initial year.15/ The Carnegie Commission reminded the Federal Government and the postsecondary education community that the degree to which their recommendations on equal opportunity would be successful depended, in part, "on the availability of minority teachers at all levels."16/

Numerous current Federal programs have as their goal equal opportunity to continue in postsecondary education. Office of Education student financial aid programs provide funds to students beyond the freshman year; Special Services for Disadvantaged Students program funds seek to improve supportive student services in postsecondary institutions. At the graduate and professional levels, Federal programs in various agencies provide grants to graduate students in specific fields--some are directed toward disadvantaged and minority students; others promote equal opportunity in specific fields such as health, urban studies and science.

Federal policy issues include major questions: (1) To what extent have barriers to the opportunity to continue in postsecondary education hampered Federal efforts to ensure equal educational opportunity? (2) How can the Federal Government ensure that disadvantaged students will not be forced to drop out because of lack of adequate financing? (3) What can be done about underrepresentation of minorities in professional and graduate schools? (4) What programs should be operated which assist students, through the provision of counselors, tutors, etc., to continue their postsecondary education? (5) How can institutions be encouraged to develop programs and services which will promote educational opportunity for low-income students to continue and complete their education? (6) What should the State role be in this area and what should be the relationship of the Federal Government to the States?

2. Manpower Needs

The policy category of manpower needs subdivides into two basic areas: (1) the overall supply and demand for college-trained manpower, and (2) specific manpower needs.

a. Supply and Demand

In 1970 the Bureau of Labor Statistics estimated that a high school education would be sufficient for 8 out of 10 jobs during the 1970's. Current news reports have stated that many recent college graduates have blue-collar,

14/ Toward Equal Opportunity, op. cit., p. 7.

15/ See Warren W. Willingham, The No. 2 Access Problem: Transfer to the Upper Division. (Washington, D.C.: ERIC Clearinghouse on Higher Education, 1972)

16/ In A Chance to Learn, op. cit., p. 18.

sales and clerical jobs in which they do not utilize their postsecondary education. As the Newman Task Force put it:

> In the aggregate, technology creates more jobs than it destroys, but the jobs created do not always require more skill than those replaced. For the last few years, this problem has been compounded by an economic recession and a slowdown in the flow of research and development funds... which have combined to lessen the demand for college-trained employees just as the supply was reaching new peaks.17/

For years the demand for college graduates has exceeded the supply; however, the new phenomenon of graduates unable to find jobs appears likely to continue for some time. It is especially ironic, the Newman Task Force noted, that the demand for college-educated manpower is declining exactly when equal opportunity initiatives have encouraged so many new students to enter postsecondary education.

The Task Force observed that "whereas the ability of college degrees to ensure entrance to the middle class is eroding as degrees proliferate, they still have a more powerful ability to certify middle-class membership for minorities than for whites."18/

The Carnegie Commission has highlighted another supply and demand policy problem for educated manpower. Their report, College Graduates and Jobs, states that Federal research programs heavily and sometimes undesirably affect the supply of college graduates. The instability of support has been the problem. As Federal R&D expenditures fluctuated (as in the space industry) so did the demand for college-trained manpower. The Carnegie Commission noted the effect of Federal R&D expenditures on the market for Ph.D.'s as well (up in the early 1960's, down in the late 1960's, and up slightly in the early 1970's). The Commission also pointed out the probable future effects on the demand for college graduates as a result of such Federal programs as the National Direct Student Loan program and others which encourage individuals to enter certain fields.19/ The fact is that often one part of the Federal Government encourages what another part would discourage. Federal programs train more individuals, Federal planners worry about oversupply. As there is no overall postsecondary education policy, these problems will continue.

The Federal Government has, however, tried to help in the manpower and supply area through the use of economic forecasting techniques. Results suggest that the economy's requirements for college-educated manpower are extremely difficult to measure, especially by individual fields of study and/or employment. The Carnegie Commission describes the problem:

17/ The Second Newman Report, op. cit., p. 21.

18/ Ibid., p. 28.

19/ See the Carnegie Commission's College Graduates and Jobs: A Report and Recommendations. (New York: McGraw-Hill, 1973), pp. 142-144, 179.

> In varying degrees, the methods used in many of the projections that have been developed by Federal Government agencies in recent years have been deficient. They have relied too heavily on past trends and have failed to take into account probable adjustments on both the demand and the supply sides of the job market. And yet, it is not at all clear that enough is known about these adjustments to permit the development of adequately sophisticated models for long-range projections.20/

Though others have criticized various aspects of Federal Government manpower forecasting efforts, attempts must be made to predict the demand for college-educated manpower.21/ Until techniques improve, Federal policymakers cannot accurately assess the probable impact of alternative manpower strategies.

b. Specific Manpower Needs

Most Federal program support in manpower development has evolved in three distinct areas.

The first involves general skill training and is principally supported by the Department of Labor under the Job Corps, the Manpower Development and Training Act programs (now part of the Comprehensive Employment and Training Act) and similar programs. The Social and Rehabilitation Service (HEW) and the Appalachian Regional Commission provide additional support of similar kinds. These Federal programs have emphasized postsecondary training as a means of enabling individuals to find permanent and productive employment.

The numerous programs for postsecondary institutions and students in teacher training constitute a second area of Federal program support. Aid is available for teachers of elementary, secondary, and postsecondary education, as well as for college and university teacher training programs.

The third area of Federal involvement includes specific categories where the Government has decided that shortages of skilled manpower exist. These shortages are widely varied, and numerous Federal agencies operate programs to offset them. For example, HEW funds training programs in many areas such as health manpower; other agencies administer training programs in air and water pollution control, occupational safety, civil defense techniques, etc. Programs support institutions in these training efforts by assisting them to build facilities or by funding instructional costs (in some programs), or by providing equipment.

Federal policy issue questions in these manpower areas include: (1) Are Federal manpower skill training programs effective in providing postsecondary training to their participants? (2) Are participants finding productive long-term employment? (3) Since many Department of Labor training programs have been

---

20/ Ibid., p. 186.

21/ See, for example, Charles V. Kidd's comments in D. W. Vermilye, ed., The Future in the Making, op. cit., pp. 43-48.

consolidated into the Comprehensive Training and Employment Act and now will be administered by State and local governments, what should be the future Federal role in manpower training?

Postsecondary institutions are offering more and more skill training and occupational education. In The Open-Door Colleges, the Carnegie Commission recommends "coordinated efforts at the Federal, State, and local levels to stimulate the expansion of occupational education in community colleges and make it responsive to changing manpower requirements."22/

The Federal Government is facing the policy issue of postsecondary career education at this time. Clear definition of what career education means at the college and university level is necessary. Four-year institutions are beginning to develop occupational education programs for their students.23/ What should the Federal role be in the development of such programs?

Many sources, including the Carnegie Commission, are predicting continuing dim employment prospects for college faculty members as well as primary and secondary school teachers. With over 160 teacher training programs in operation in fiscal year 1974, the Federal Government is playing a major role in this manpower area. Though demographic factors are the chief cause of the surplus, the Federal Government must ensure its efforts do not increase the problem of oversupply. This is especially acute for women since, according to the Carnegie Commission "about one-half of all employed female college graduates have been engaged in teaching."24/

The Carnegie Commission, however, quotes the Bureau of Labor Statistics as noting:

> Teaching opportunities for both men and women will be very favorable in urban ghettos, rural districts, and other areas offering unfavorable working and living conditions. There will also be increased demands for teachers of mentally retarded or physically handicapped children, for teachers in vocational and technical schools, and teachers in two-year colleges.25/

The Commission suggests that the issue facing the Federal Government and others is that of adapting teacher training to changing needs for education manpower.

Federal manpower programs to reduce shortages of trained personnel in particular fields are based on the premise that shortages exist and their elimination is in the national interest. Though definitions of shortage areas and of

---

22/ Carnegie Commission on Higher Education, The Open-Door Colleges: Policies for Community Colleges. (New York: McGraw-Hill, 1970), p. 21.

23/ See, for example, Lewis B. Mayhew, Higher Education for Occupations. (Atlanta, Ga.: Southern Regional Education Board, 1974)

24/ In College Graduates and Jobs. op. cit., p. 71.

25/ Ibid.

the best means of alleviating them have been the source of constant Federal policy debate, most agree that the next few years will bring a manpower shortage in the health field, especially if national health legislation becomes a reality. But training programs in this, and in other less obvious shortage areas, require constant scrutiny by Federal program administrators as well as policy developers. Federal agencies must examine their support for specific graduate training programs. As the Newman Task Force pointed out, "The issue in graduate education today is not growth, but reform; not the shortage of needed manpower, but the need for improved training in certain fields."26/

3. Recurrent Education

In Purposes and the Performance of Higher Education in the United States, the Carnegie Commission stated, "We believe, first, that concern should be spread from the college-attending group to the total postsecondary age group."27/ They also recommend that "opportunities be created for persons to reenter higher education throughout their active careers in regular daytime classes, nighttime classes, summer courses and special short-term programs, with degrees and certificates available as appropriate."28/ Various experts called for more opportunities to be developed by the Federal Government for adults to take classes and to obtain any needed financial support. As the Newman Task Force put it, "Under any foreseeable conditions, there will be substantial underemployment of college graduates in relation to the traditional view of 'college-type' jobs. A more rational relationship between education and careers can come about if realistic opportunities exist for students to return to formal education on a recurrent basis throughout life..."29/ In discussing the scope of recurrent education, a Kellogg Foundation study found that "terms like 'continuing education' or 'adult education' are too conventional and administrative in meaning to encompass the comprehensive responses called for in attitudes and national policy."30/ This study and others called for broad opportunities for what they termed the "learning society."

Whatever it is titled, recurrent education has tremendous implications for the process of education and for national education policy. The New York Times Guide to Continuing Education in America, compiled by the College Entrance Examination Board, contains over 700 pages of continuing education opportunities (as of 1970) offered by accredited institutions. Many more such courses--accredited or nonaccredited--are available today. An OECD Conference on Recurrent Education (held at Georgetown University in 1973) discussed possibilities for financing such broad learning opportunities, and noted that "if recurrent education is to be taken seriously as a citizenship right, like social security or pensions, then

26/ The Second Newman Report..., op. cit., p. 100.

27/ Carnegie Commission on Higher Education, The Purposes and the Performance of Higher Education in the United States. (New York: McGraw-Hill, 1973), p. 37.

28/ Carnegie Commission on Higher Education, Less Time, More Options, op. cit., p. 19.

29/ The Second Newman Report..., op. cit., p. 34.

30/ Theodore M. Hesburgh, Paul A. Miller, and Clifton R. Wharton, Jr., Patterns for Lifelong Learning. (San Francisco: Jossey-Bass, 1973), pp. 4-5.

the transformation of the established system is at issue..." The report considered other innovative options including flexibility in the traditional work-education relationship, and admitted the need for increased education budgets.31/ The Kellogg Foundation study stressed the need for efforts to develop and improve recurrent education for professionals, as well as the need for retraining programs in areas of surplus manpower.32/

The National Advisory Council on Extension and Continuing Education identified (in 1972) over 140 Federal postsecondary education programs as supporting continuing education and recurrent education.33/ The Cooperative Extension Service programs (administered by the Department of Agriculture) and the less extensive Community Service and Continuing Education program (Office of Education) can be considered major programs. Other Federal programs encourage retraining of professionals in various fields; some provide fellowships and other benefits to established college faculty.

The issue facing the Federal Government concerning recurrent education is major. If support of recurrent education for adults is adopted as a national goal, as some groups recommend, the budget implications would be substantial. Some have argued that the Federal Government should provide an "educational bank account" for individuals, to be drawn against as they pursue postsecondary education throughout their lifetime. Many have suggested that the Federal Government will have to reassess the policy under which financial aid is provided largely to students between 18 and 22 years old. As technological change calls for more retraining of individuals during their working lives, Federal policymakers must decide upon the Federal role in sponsoring such retraining activities. The problem is broad and the policy issues are complex. Lifetime education is a new challenge to Federal planners concerned with education, the economy, and the general welfare.

4. Educational Diversity

The policy issues in the area of educational diversity can be divided into two areas: (1) issues dealing with new students and new types of education at the postsecondary level; and (2) problems of stimulating institutional diversity. Both are discussed in this section.

a. New Students and New Education

As postsecondary education enrollments have expanded over the last few years, a new population has been entering, larger and much more diverse than before. These new students are more varied in age, race, and social background, in acad-

---

31/ Selma J. Mushkin, ed., Recurrent Education. (Washington, D.C.: Department of Health, Education, and Welfare, National Institute of Education, 1974), p. 319.

32/ Patterns for Lifelong Learning, op. cit., p. 27.

33/ In A Question of Stewardship, A Study of the Federal Role in Higher Continuing Education. (Washington, D.C.: 1972)

emic experience and in ability. As Dr. Patricia Cross points out, so many students from the academic upper half of their high schools now go on to some form of postsecondary education that there are not many "academically well-prepared" students left to recruit, regardless of their social background. As she puts it, "a group of young people whom we used to dismiss as 'not college material' are now walking through the open doors of colleges, and they constitute a growing proportion of the college population."34/

The Newman Task Force highlighted another group of what might be called "new" students. "While hundreds of thousands of students leave college because they find it disappointing, hundreds of thousands more enter and stay in when they might better serve their interests and aspirations elsewhere. Strong pressures in our society, some old, others recent, keep students in the academic lockstep."35/

A new, diverse clientele for postsecondary education results today when we add to these two groups those aware of the recently declining demand for college-educated manpower. Many in this third group are, therefore, seeking postsecondary career education which will lead to productive jobs.

As entering students become more diverse, many study groups and others are accusing postsecondary education institutions of a discouraging similarity. The Newman Task Force noted:

> American higher education is renowned for its diversity. Yet in fact our colleges and universities have become extraordinarily similar. Nearly all 2,500 institutions have adopted the same mode of teaching and learning. Nearly all strive to perform the same generalized educational mission. The traditional sources of differentiation between public and private, large and small, secular and sectarian, male and female, are disappearing.36/

In reflecting on the original Rivlin Report (published in 1969), Alice Rivlin said later, "We spoke of preserving diversity as though we thought we had it. But if one thinks seriously about American higher education, it seems to me, its most singular characteristic is not its diversity but its uniformity."37/ Colleges and universities assume that the traditional academic method is the only method of teaching.

Yet new postsecondary students are seeking new types of learning, much of which is not in the traditional academic model. Dr. Cross suggests that even

34/ In D. W. Vermilye, ed., The Future in the Making, op. cit., p. 89.

35/ As quoted in The Second Newman Report, op. cit., p. xi, but originally included in the Task Force's first report.

36/ Ibid., pp. xi-xii.

37/ In Financing Equal Opportunity in Higher Education. (New York: College Entrance Examination Board, 1970), p. 6.

community colleges might not be "different enough" from the more traditional higher education institutions to serve these students. She calls for the design of new and different educational experiences for different kinds of students. "I believe we should strive for maximizing our chances of educating our diverse new clientele. Postsecondary education is too big and too influential for us all to do the same thing at the same time."38/

Several groups have pointed out the many close ties between the need to improve educational diversity for new students and the goals of assuring equal access and equal educational opportunity. The Newman Task Force emphasized that "if we are serious about equal opportunity, access alone is not enough. The national concern must move beyond a focus on access to a concern with the 'effectiveness' of the education process in relation to the individual."39/ The Task Force argued that an appropriate goal of public policy "is the provision of an opportunity for more meaningful choices among many forms of postsecondary education."40/

The Committee for Economic Development brought out another argument for the support of educational diversity. "...diversity in the type and character of colleges and universities--in such matters as education purposes and goals, instruction programs, types of facilities and students, institution size and location, and types of organization and control--serves the Nation's varied manpower requirement."41/

The rapidly increasing number of proprietary schools in postsecondary education has sought to bring innovative kinds of education within reach of students. New kinds of colleges, geared toward new students, have been opened.42/ Open universities, single-purpose institutions, experimental colleges within a larger university, urban learning centers, cooperative and consortia arrangements--all seek to bring new and more relevant education to the new students.

The Carnegie Commission and the Rivlin Report call for encouragement of educational diversity as a major Federal goal for postsecondary education, as does the National Commission on the Financing of Postsecondary Education.

Federal programs seeking to provide such encouragement include demonstration programs and funds for innovative teaching developments--as sponsored by the National Science Foundation and the Fund for the Improvement of Postsecondary Education. The real policy issue facing the Federal Government, as noted in the Second Newman Report, is whether the nature and extent of diversity matches the range of student needs. They question the spectrum of available educational

---

38/ The Future in the Making, op. cit., pp. 94-95.

39/ The Second Newman Report, op. cit., p. 5.

40/ Ibid., p. 6.

41/ In The Management and Financing of Colleges. (New York: 1937), p. 17.

42/ See, for example, Lawrence Hall and Associates, New Colleges for New Students. (San Francisco: Jossey-Bass, 1974)

choices for those who "want to develop differing skills, who want to capitalize on differing abilities, or who learn in different ways."43/

b. Stimulating Institutional Diversity

The problems the Federal Government faces in this area of educational diversity focus on higher education institutions, particularly traditional ones. In the 1960's a Federal rationale for support of colleges and universities developed. As the Newman Task Force explains it, "If it was important to conduct research or to educate, then it was important that the institution be properly equipped to do the job."44/ In keeping with this rationale, such Federal programs as construction aid, support for college libraries, funds for developing institutions and for support of particular academic departments within an institution came about. Each program was intended to provide assistance to institutions which were meeting particular Federal needs.

By the late 1960's and early 1970's, a number of factors (including rising enrollment levels of incoming students needing new institutional counseling and remedial services) created new pressures on college and university budgets. Declining enrollments in some schools and increased operational costs were among other factors. Apprehension grew over the perceived problems of college financing.45/ Predictions of severe financial distress for institutions prompted the passage, in the Education Amendments of 1972, of programs to provide Federal monies to colleges and universities. To date, the Office of Education has not funded these programs. Whether or not to operate them, or to develop others with similar purposes, is an important Federal policy issue.

Just how severe the "financial distress" faced by institutions is constitutes a problem. Another is whether or not the Federal goal of stimulating educational diversity is strong enough to require a substantial Federal role in institutional financing. A third problem, discussed by the National Commission on the Financing of Postsecondary Education, the Newman Task Force and the Committee for Economic Development, is the measurement of costs at postsecondary institutions. Accurate measurement of "financial distress" should be made before the Government takes any action on this particular issue. But the development of costing methods is not easy. Chapter 8 of the National Commission's report carries a full discussion of the possibilities and problems Federal policymakers face in seeking the development of uniform procedures for reporting annual per-student costs.

The policy issues in educational diversity are, it can be seen, numerous and Federal policymakers face significant questions.

43/ Op. cit., p. 40.

44/ Ibid., p. 67.

45/ See appendix C of the final report of the National Commission on the Financing of Postsecondary Education for a summary of the numerous studies which have discussed the problems of institutional financing.

5. Research

Federal planners have not considered the category of research a major area of policy issues to the extent they have the categories of equal opportunity or educational manpower and diversity. Research should be considered a major area, for at least two reasons: first, the Federal Government, through many of its separate agencies, supports a large number of categorical research programs in a wide range of fields. (See appendix B, part I.) Substantial amounts of Federal money go to postsecondary institutions to support these research efforts. Federal policymakers should question, therefore, the use and effectiveness of these funds. Consequently, it must be asked: What is the role of postsecondary education in the Nation's research effort? What should it be in the future?

Student unrest over the college and university military research efforts has brought into question the role of postsecondary education as a major contractor for Federal research programs.

A second reason the research category contains policy issues of interest to Federal education policymakers has been stated as follows:

> A century ago, scientists were attempting to transform the old college into a true university, an institution in which faculty and students...could search for new truths instead of dwelling on what was already known. Ironically, now that the university has become such a successful research institution, faculty members are criticized for devoting too much time to research and not enough to telling undergraduates what is already known. Many students would like to turn the university back into a school.46/

The Federal policy and practice of conducting much of its research through colleges and universities began after World War II with the establishment of the National Science Foundation. Establishment of the Atomic Energy Commission and the National Aeronautics and Space Administration strengthened the policy. Though these two agencies have recently cut back their support of research, the National Science Foundation and now HEW have begun to provide steadily larger proportions of the research funds going to colleges and universities. As Wolfle points out, "It was HEW and not DOD that was in the strongest position to influence academic research in 1971."47/

At first, much of the research sponsored at postsecondary institutions was in scientific fields. But recently, with the establishment of the Environmental Protection Agency, the National Foundation for the Arts and Humanities, and the National Institutue for Education, research areas have been expanded into the humanities and the arts.

46/ Dael L. Wolfle, The Home of Science: The Role of the University. (New York: McGraw-Hill, 1972), pp. 128-129.

47/ Ibid., p. 116.

Wolfle states the current problem:

> Government agencies were expected to use universities and other nongovernmental institutions to accomplish their research objectives, and while there has been some coordination among the agencies, they have not been required to integrate their plans or to pay much attention to the permanent welfare of the universities as whole institutions.48/

Postsecondary education must now develop a better rationale for its role in the conduct of the Nation's research. Traditionally many have argued that Federal research support to colleges and universities helps to educate students, to promote and maintain faculty competence, and to preserve the role of postsecondary institutions as critics in our society. Yet, recently, some of the largest universities have been described as quasi-governmental agencies, and there have been increased demands for better institutional, fiscal, and program accountability.

Nevertheless, Federal R&D funds going to colleges and universities continue to rise. For the period 1971-1973, Federal R&D obligations to postsecondary institutions rose from $1.6 billion to $2.1 billion. The National Science Foundation noted that "HEW support of the university and college sector in 1973 is expected to cross the $1 billion line, the first time any one agency will make such a large commitment of funds to this sector."49/

The issues in this area of research support are important. What has been the impact on colleges and universities of these Federal research funds? What will be the capabilities of these institutions to carry out these needed research efforts in the future? Harold Orlans argued that student rebellions on campuses in recent years were due in part, at least, to the demands of federally-sponsored research, which, in his view, caused "the neglect by faculty of their colleagues and their institutions."50/ This problem is tied to the questions raised under the category of educational diversity about the need for more effective education for students. Because Federal research support strongly affects postsecondary education, Federal policymakers must develop a better understanding of those effects and their consequences for the future.

This chapter has identified postsecondary policy issues in the areas of equal opportunity, manpower needs, recurrent education, educational diversity, and research. It is not reasonable to assume that Federal policymakers will be able to focus on all these issues equally. Priorities must be set for future government action. However, this is a difficult task at best. Various methods

48/ Ibid., p. 128.

49/ National Science Foundation, Federal Funds for Research, Development, and Other Scientific Activities. Fiscal Years 1971, 1972 and 1973. (Washington, D.C.: Government Printing Office, 1972), p. 9.

50/ Harold Orlans, The Nonprofit Research Institute. (New York: McGraw-Hill, 1972), p. 141.

can be developed, among them indentifying relative amounts of Federal money involved in programs included under each issue area, or defining issues of more interest to one Federal agency seeking to set priorities than another.

If the level of Federal program funding is used as a criterion for setting priorities among policy issues, then it should be noted that slightly over half of all Federal funds supporting postsecondary education are directed toward equal opportunity and manpower goals. About 100 Federal programs in all the Federal agencies involved were classified in fiscal year 1972 as supporting these two goals. The bulk of the remaining programs (nearly 400 in fiscal year 1972) were directed toward the goals of educational diversity and research. Few Federal programs supported recurrent education. These groupings might be interpreted as directing Federal policymakers to concentrate on equal opportunity and manpower as first priorities, diversity and research issues next, and finally recurrent education. However, it can be argued that there are other ways of assessing priorities.

The Office of Education might survey the postsecondary education programs it administers itself and develop priorities concentrating more heavily on students and equal opportunity issues.

Federal policymakers could also look more to the future, putting aside consideration of current operations, and make the prediction that recurrent education will be a major focus of Federal postsecondary education activity in the next decade.

Whatever priorities are set by the Federal Government, coordination must exist between those responsible for data collection and those responsible for policy identification, in order that future Federal data-collection activities reflect these identified priorities.

IV. FEDERAL DATA NEEDS

This chapter describes the categories of data needed by Federal policymakers to better devise postsecondary programs and strategies for the 1970's and beyond. The data categories are not exhaustive, but they do seek to be comprehensive in responding to the questions raised by the issues in each of the five policy areas described in chapter III. It is not the purpose of this chapter to suggest new postsecondary education programs or alternative strategies for addressing the various policy issues raised in chapter III.

This study, it should be noted, involves a broad view of postsecondary institutions and students. The study surveyed Federal programs sponsored by 25 different agencies, far beyond the range of normal Office of Education operations. The Newman Task Force stressed the need for data-collection activities across this broad spectrum. Federal statistics, they argued, must include a broad range of institutions. Postsecondary education data needed today are of greater complexity than those collected in earlier years. The Federal Government should not "emphasize those things which can be counted most easily."1/ As the National Commission on the Financing of Postsecondary Education put it:

> Information bearing upon the full spectrum of postsecondary education--not just the narrow spectrum now deemed useful for program management in the Office of Education--must be collected. Data on the noncollegiate as well as the collegiate sector should be included and they should reflect the full scope of public sector involvement...the Commission recommends that comparable financial information for the entire postsecondary education enterprise be collected and reported in a timely and systematic fashion.2/

This chapter suggests data categories without regard to methods of collection; in many cases the National Center for Education Statistics would not be the collector. Indeed, some information can be better collected by the Bureau of Labor Statistics, the National Science Foundation, the Census Bureau and other agencies. (This is discussed in chapter VI). For the purposes of this chapter, needed data are noted without regard to collection methodology or responsibilities.

1/ The Second Newman Report, op. cit., p. 100.

2/ In Financing Postsecondary Education in the United States, op. cit., pp. 130, 338.

The pages that follow describe the necessary data categories under each of the five policy issue areas. Data required to respond to one set of issues may well be necessary for another category of problems, and some data overlap will occur among policy categories.

Appendix B, part II, of this report, presents the data needs outlined in this chapter. Each Federal policy issue is broken down into issue dimensions and needed-data categories in this appendix.

A. Equal Educational Opportunity

The Carnegie Commission has recommended that the Commissioner of Education designate a unit within the Office of Education "to develop standard definitions and methods of reporting to ensure the coordination, evaluation, and dissemination of available data" on equal opportunity, as "national policy for equal opportunity must be based on the most recent and significant data."3/

1. Equal Access

To determine the effect of current policies and programs on access, the Federal Government needs better information. More data are needed on the characteristics of postsecondary entering students, including such minimum variables as age, race or ethnic group, sex, some measures of personal or family income, other socioeconomic (SES) background data, and some acceptable measure of ability. These data need to be collected regularly; if not annually, then biennially.

Statistics on entering students must be collected across the broad range of postsecondary education options, including proprietary schools, public trade and technical schools, and other education options as well as from the more traditional higher education institutions.

Similar data on those who do not enter postsecondary education after high school or at any other time are needed if the problems of access are to be understood. Analysis of detailed statistics for students entering postsecondary education with identical data for nonentrants will shed much useful light on the access question.

In addition, information from students, their families and postsecondary institutions is necessary on the perceived and actual barriers to attendance for these nonentrants. These barriers include lack of finances, of motivation, and of nearby postsecondary institutions. Questions as to ability must also be considered and needed data assembled.

Data are required on the motivation and perceptions of potential students toward postsecondary education. What are their alternatives? What are the nonentrant high school leavers doing?

3/ In A Chance to Learn, op. cit., pp. 25-26.

The influence of primary and secondary schools on the propensity of students to enroll in postsecondary education has been noted. More data are needed, including institutional attitudes (as well as personal characteristics) of high school dropouts, choices of high school, influences of parents and peers, curriculum as a factor in postsecondary education attendance, and numbers and characteristics of students completing high school equivalency exams.

National data about how entering students pay for their education need to be collected regularly. Sources of support, including parents, the student himself, spouses and other outside funding sources--Federal, State, local, and private--must be collected.

Once students have entered postsecondary education, they have not necessarily achieved equal access. More data are needed (by the same personal characteristic variables) about part-time as well as full-time enrollees which describe the factors (finances, job or home requirements, and other constraints) behind their enrollment in a less than full-time schedule.

The age of entrants is an important factor in the question of access. More data are needed about the characteristics of late entrance because of lack of finances, job or home requirements, or geographical location of an available postsecondary institution.

Data are needed on the impact of Federal student financial aid funds, since the Government has such a large investment in this area. Such data could be used to assess the impact of student financial aid monies from all agencies providing such funds, not just the Office of Education, but also Veterans' Administration and Social Security benefits, Indian grants, and other sources. Does the provision of student aid break the access barrier for disadvantaged students? How does aid affect the behaviors of students, institutions, and States? What are the varying impacts of these funds by type of aid (grants, loans, and work arrangements)? What is the marginal impact of additional student aid funds in eliminating the access barrier? If Federal policymakers are to evaluate current student financial aid programs in access problems, these data are needed.

The postsecondary education community and education planners in the Department of Defense and other Federal agencies also need up-to-date data on who learns what and how while in the military service. Many servicemen take courses at civilian institutions: more data are needed about these students and their activities.

Data on student financial aid programs should be coordinated at the national level. Data on out-of-State migration of students are needed on a regular basis, perhaps every two years, so that Federal and State incentive programs and additional mechanisms can be devised to promote equal access. These are among the questions for which data are needed on postsecondary education entrants and nonentrants on a State-by-State basis. Once these are answered, potential State barriers to equal access can be identified.

Finally, what attack on barriers to equal access are institutions making? What impact have community colleges made on equality of access? Have their availability, costs, curriculums, teachers, etc. encouraged students to enter postsecondary education? What are postsecondary institutions doing about remedial education? Have counseling and tutoring facilities been established? Federal review of equal access policy issues requires data on these institutional efforts.

2. Equal Choice

Measures of equal student choice within the broad equal educational opportunity question are more complex. Federal officials need data to decide the Federal role. Information about student enrollments (including personal characteristics) at all types of postsecondary institutions must be collected. Institutional charges must be matched to the statistics describing the characteristics of student enrollees. Data concerning the distribution of low-income students at these various types of institutions must be collected. In addition, student charges for out-of-State students must be assembled, so their impact on equal opportunity can be examined.

Students participating in Federal financial aid programs need to be surveyed so the impact of financial assistance on choice of institution can be analyzed. Student financial aid packages must be examined since many low-income students receive funds from more than one Federal or State program source or from self-help. These data will assist policy analysts to measure the sources and extent of the problems of unequal student choice.

3. Opportunity

Dropout and retention rates and reasons are important data needs in the issue of equal opportunity to continue in postsecondary education. The Federal Government needs these data to estimate the success of its equal opportunity programs. Needed data include personal characteristics of dropouts, by type of institution, and level of study completed.

Data on the retention of students in postsecondary education are also necessary. The Federal Government should know who continues through so that the factors which encouraged continuation can be replicated elsewhere. Data on dropouts and on continuing students must include the part-time as well as the full-time. Data are needed on the educational, financial and motivational factors causing students to drop out if equal opportunity is to be achieved.

Data are needed about transfer students. Data on graduates of 2-year institutions and on entrance rates into upper division colleges must be collected by personal characteristics, by field of study, and by institution. Such transfer data should be collected regularly. Potential barriers to transfer must be examined, including availability of student financial aid, transfer admission requirements, and availability of transfer institutions.

In addition, data, including personal characteristics, type of studies, and type and control of institution, must be collected on graduates and others in proprietary institutions and other postsecondary education centers providing

skill training and career education. Many students in proprietary and other similar schools drop out before completing their studies because they have learned sufficient skills to find employment. Data on these dropouts must be gathered, since retention and graduation statistics from these kinds of postsecondary education institutions can be misleading.

A third major area of data needs concerns college graduates and entrants into graduate and professional schools. Graduation information about students, including age, race or ethnic group, sex, field of undergraduate study, type and control of institution from which graduated, and some measure of college achievement (such as grades, Graduate Record Exam scores, or similar information) must be gathered. Similar data must be collected about entrants into graduate and professional schools, including their eventual retention rates, dropout statistics, or final graduation by type of institution, fields of study, and degrees awarded. Minority and disadvantaged students are especially underrepresented in graduate and professional schools. If the Federal Government is to improve equal opportunity throughout postsecondary education, more detailed statistics about these students' progress at advanced educational levels are needed.

B. Manpower Needs

Data needs under this heading relate, as did the issues in chapter III, to two areas: (1) supply and demand, and (2) specific manpower needs.

1. Supply and Demand

The Carnegie Commission has recommended that "the Federal Government should give high priority to the development of more adequate, sophisticated, and coordinated programs of data gathering and analysis relating to highly educated manpower."4/

The Newman Task Force also emphasized the need for Federal efforts in this area. "The Federal Government can help by developing and disseminating more reliable data on the supply and demand for highly educated manpower."5/ As others have put it, "unless we have a system for monitoring the development of educational and career plans, we will be in a poor position to advise students or to plan the needed changes in recruitment policies or educational program development."6/

In considering the future supply of college graduates, Federal policymakers need to know more about shifts in undergraduate enrollment patterns--and their causes, including the increasingly high cost of attending college, the job market for college graduates, and the increasing tendency for students to "stop out" of

---

4/ In College Graduates and Jobs, op. cit., p. 138.

5/ In The Second Newman Report, op. cit., p. 34.

6/ John K. Folger, Helen S. Astin, and Alan E. Bayer, Human Resources and Higher Education. (New York, Russell Sage Foundation, 1970), p. 362.

college and return later.

Student perceptions of viable career options must be analyzed, students' knowledge of the realities of the world of work and necessary skills for jobs must be assessed. More data are required about career education programs now offered by postsecondary institutions. What institutions are training students for what types of skills? Data addressing these questions must be assembled so that better estimates can be made of the supply of trained manpower.

Additional data are needed on the efforts of postsecondary institutions to provide career counseling and job placement services to their students. In proprietary institutions placement services are especially important to students, so data by type of institution and by type of services offered are important here. (Students at proprietary institutions can receive Federal student aid funds; thus the Federal Government needs improved information about the annual operations of these schools.)

Data on enrollments and graduates, at undergraduate, graduate, and professional levels should be collected by age and race or ethnic group, as well as by sex and field of study, as is done now. Such information would help define the future labor force being trained by postsecondary education institutions.

Proper assessment of the overall need for manpower training at the Federal level requires that more data be collected in the following experimental areas: open-entry training systems with no prerequisites; the use and effectiveness of training modules and individualized instruction; ladder approaches and open-exit programs; and cluster training for broad occupational groupings. Data which could demonstrate the effectiveness of stipends to make full-time training possible for adults are also needed.

The Education Amendments of 1974 state that NCES shall collect data on education activities in foreign countries. The migration of American students abroad and foreign students into the United States is one aspect of this activity and represents an important manpower problem. Regular data collection on both these student populations is needed, including statistics on personal characteristics, field of study, location and type of institution, and factors contributing to migration, including lack of equivalent education facilities or courses in the home country. As American medical students denied admission to U.S. medical schools are going abroad, and as many foreign nationals come to the United States to complete their medical training, these data are important to health manpower planners.

Most of the data categories detailed above seek to describe the supply of postsecondary education manpower. Data are also necessary about the demand for educated manpower, so that students can better plan their careers and institutions can develop more relevant educational programs.

More data, including such variables as curriculum studied, ability and personal characteristics, are necessary about the employment patterns of persons from various postsecondary education levels. The Carnegie Commission recommended spe-

cifically that "Federal Government agencies should develop more adequate data on occupational and industrial employment patterns of graduates of 2-year colleges and of dropouts from institutions of higher education."7/

One factor influencing the demand for college-educated personnel is credentials. Data should be collected on the educational requirements and degrees actually necessary for employment in various jobs, ascertaining if specific degrees are really necessary for employment in certain fields. The scope of the survey should include what job skills are needed which can be taught at postsecondary institutions. These data would help planners to examine degrees and educational requirements at colleges and universities and to assess their impact on the flow of college-educated manpower.

The Carnegie Commission also recommended that Federal agencies "should undertake studies of the implications of the changing job market for holders of master's degrees and for enrollment in master's programs."8/ Such a study would require collection of data about the competition college graduates face for jobs from others in the work force, including married women entering or reentering the job market, foreign nationals in the United States, and senior citizens seeking part-time or volunteer employment.

Though manpower forecasting is a difficult process, the Federal Government needs to more accurately predict the future effects of current labor market situations on college graduates. Predictions by individual occupations over a relatively long-term period are necessary so students can acquire appropriate skills and education. Federal planners and the postsecondary education community will require timely release of such data.

2. Specific Manpower Needs

Although much of the Federal effort in manpower skill training is being transferred to State and local governments, Federal data needs remain in this area as some Federal manpower skill training programs are continuing to operate. Needed data include the effectiveness of various kinds of skill training, using such variables as length of training and its results in terms of students' experience of long-term productive employment.

The Federal Government must examine exemplary training programs and gather statistics which describe them in detail sufficient to enable similar results to be replicated elsewhere.

Much manpower training data currently collected deals with basic characteristics of student participants. More data are needed, some suggest, describing how students learn about work attitudes, human relations skills, orientation to the working world, alternative career choices and the acquisition of specific

---

7/ In College Graduates and Jobs, op. cit., p. 47.

8/ Ibid., p. 161.

job skills.9/ Such data collection should enable the Federal Government to improve its own skill training programs as well as to provide assistance to States and local governments in the operations of theirs.

The Carnegie Commission noted that "...present procedures for reporting statistics of students enrolled in occupational programs are highly unsatisfactory. Non-degree credit enrollment is not always equivalent to enrollment in an occupational program, and the regularly published statistics of the U.S. Office of Education shed no light on numbers enrolled in occupational programs in specific fields."10/ The Commission recommended that OE develop a better definition of such enrollments and expand its statistics in this area.

Additional data are needed which project the needs for the many kinds of special teachers now receiving training support from the Federal Government. The Carnegie Commission made the following recommendation:

> The U.S. Bureau of Labor Statistics and the U.S. Office of Education should develop revised estimates of the future demand for teachers that take into account, as exisiting projections do not, the growing demand for teachers in pre-elementary education and in other such settings as adult education programs. There is also a need for revised estimates of supply that take account of the declining enrollment in undergraduate education programs and of a possible future decline in enrollment in master's degree programs.11/

Statistics which demonstrate whether or not manpower shortages exist and whether teacher training programs are alleviating them should be assembled for other areas of manpower training. Substantial amounts of data exist in the health area, but not in other areas of Federal training activities.

C. Recurrent Education

As noted by the National Commission on the Financing of Postsecondary Education, the Federal Government needs statistics which will enable policymakers to estimate the demand from adults for recurrent education.12/

Data must be collected regularly concerning the participants in these courses, including their age, sex, race or ethnic group, and also such data as occupation

---

9/ See for example, Larry McClure and Carolyn Buan, eds., Essays on Career Education. (Portland, Oregon: Northwest Regional Educational Laboratory, 1973), p. 130.

10/ In The Open Door Colleges, op. cit., p. 44.

11/ In College Graduates and Jobs, op. cit., p. 80.

12/ In Financing Postsecondary Education in the United States, op. cit., p. 37.

and special status (veteran, handicapped, etc.). Data must also be assembled to identify those not participating, but who wish to participate, in some form of recurrent education. Barriers to student participation in recurrent education, such as costs, availability, and location of courses, times of course offerings, etc., must be analyzed.

The Federal Government must learn more about how adults of all ages learn. Data to be collected in this broad area include information on learning structures--whether adults learn well in unstructured environments; where recurrent education takes place across the country--at home, in classrooms, through the media, or elsewhere; when recurrent education is being provided to students--at night, part time, on weekends, through monthly seminars, or through correspondence. Data are also needed about what is being studied by adults, for what purposes (self-improvement, new learning, or upgrading of skills), as well as what methods are being used to teach recurrent education and who is teaching these courses. Regular data collection in all these areas should provide the Federal Government with better information with which to assess policy issues.

Data on charges to students for recurrent education and how students pay must be collected regularly. Statistics which describe what portion of these charges are paid by the students themselves, by employers, or by other persons or organizations are necessary for Federal planners reviewing student financial assistance programs, as well as for their consideration of alternatives.

More data are needed on the institutional support of recurrent education; for example, the efforts of community colleges to provide recurrent education. In particular, their role in providing recurrent education to students of all ages; the types of students attending recurrent education courses at community colleges (by personal characteristics, courses taken); teachers of these courses; the possibilities for expansion of recurrent education activities; and techniques these schools use to inform the public about the availability of such courses all need analysis. Data to respond to these questions should be collected. In addition, similar information about recurrent education activities at other types of postsecondary institutions should be gathered, including how courses are being structured--whether through separate colleges within universities, through separate divisions within colleges, in off-campus centers, or in some other administrative arrangement.

Data should be collected on postsecondary retraining programs for adults, ascertaining what kinds of jobs are likely to require the retraining of persons over time; what demand individuals are making for further education so that they may upgrade their skills; and when the need for such retraining is likely to occur during a person's career. Data in all these areas would provide relevant information to those planning the future Federal role in recurrent education.

Finally, the Federal Government should assemble data which describe imaginative and innovative approaches to recurrent education. Data which enumerate these approaches should be accompanied by statistics describing how they work, what their impact is on learning, motivation, and absorption of education by students. Some of these approaches are used more widely than others, such as advanced

placement, independent study and work-study programs. Other newer approaches include external degrees, credit-for-service arrangements, credit for experiential learning or for occupational experiences and on-the-job training run by postsecondary institutions. Data about these so-called "people-centered" educational offerings will provide information valuable in the analysis of the future of recurrent education.

D. Educational Diversity

The data categories of value to Federal planners in the area of educational diversity are divided into two categories, similar to those found in chapter III: (1) data needs relating to new students and new types of postsecondary education, and (2) information concerning the stimulation of institutional diversity.

1. New Students and New Education

Data needed to identify the new students in postsecondary education are similar to those suggested under the category of equal educational opportunity. Characteristics of students (including variables as noted earlier) are relevant data needs if policymakers are to define accurately the new clientele entering postsecondary education. Special areas of statistical interest in this area include ability measures of students and data which examine the motivations of students to commence and continue through postsecondary education. Additional data are needed about student expectations for careers and the impact of these expectations on their choice of field of study. Broad data should be collected about how students learn, what they learn, and where.

Further data are necessary on the student demand for innovative and nontraditional forms of education, including the characteristics of students who prefer to study in these new and innovative educational options and the fields of study and the courses they are selecting.

Information is also required from institutions about new kinds of postsecondary education now offered. As one source put it, "In spite of the great difficulties presented by this data, its paucity and questionability, the double counting (of students), and lack of comparability..., the data lead us to the conclusion that there exists a great deal of educational activity which has been excluded from the 'educational system' regularly reported by the Office of Education."13/

Data are needed about the extent and use of the new degrees (e.g., the doctor of arts) in postsecondary education, including what schools award them and who receives them. Information is needed about experiments involving shorter times for degrees (e.g., bachelor of arts degrees completed in 3 years) and other similar arrangements.

Statistics should be gathered on the numbers of postsecondary institutions by the following variables: varieties of curriculum offerings available to students,

---

13/ Stanley Moses, The Learning Force: A More Comprehensive Framework for Educational Policy, (Syracuse, New York: Syracuse Univeristy Occasional Papers, No. 25., 1971), p. 24.

varieties of institutional size and administration, and varieties of teaching methods--all measures of institutional diversity as noted by the National Commission on the Financing of Postsecondary Education.14/

Data are specially needed about innovative institutional methods of presenting postsecondary education to students and the application of these methods to other centers of learning. Included here is information about nontraditional ways to earn traditional degrees--Saturday classes, educational television, and courses by newspaper. Data about nontraditional learning methods used to obtain traditional degrees should be assembled, including such options as the University Without Walls, and Britain's Open University. Further information should be collected about the use of examinations, such as CLEP (College Level Examination Program) for credit or degrees, including who takes such exams and which schools accept them. Data about the use of computers, television and other advanced technologies to improve learning should be included here.

Institutional consortia arrangements have spread across the country in recent years. Federal planners examining new education administration arrangements need data about their numbers and their characteristics, including methods of operation, extent of shared facilities, faculties, students, and computers. A number of Federal programs encourage such institutional arrangements, including Developing Institutions, Ethnic Heritage Studies, and the Fund for Improvement in Postsecondary Education programs. More data about the operations of such cooperative arrangements are needed at the Federal level.

Information is needed about the success and failure rates of innovative educational institutions and programs--schools closed, innovative programs discontinued, and similar situations.

Continued and ongoing data collection is especially important in the noncollegiate sector of postsecondary education (as noted by the National Commission on the Financing of Postsecondary Education). Distributions of students, by the characersitics noted in this chapter, and changes in enrollment levels are important data needs.

A survey needs to be undertaken of the estimated 3,500 postsecondary education institutions not yet eligible for participation in Federal programs.15/ Many of these schools are licensed in the States in which they are located. While data about such schools need not be collected annually, Federal planners concerned with problems of supporting educational diversity and improving equal opportunity must know their number, their locations, the courses offered, and the numbers and basic characteristics of the students attending them.

14/ In Financing Postsecondary Education..., op. cit., p. 61.

15/ As estimated by the National Commission on the Financing of Postsecondary Education in Financing Postsecondary Education..., op. cit., p. 17.

2. Stimulating Institutional Diversity

The debate over the merits of Federal support for postsecondary institutions, particularly in the traditional higher education sphere, highlights the need for improved knowledge about institutional financing. The following paragraphs note some of these data areas.

If some institutions are experiencing "financial distress" and if Federal policymakers want to define the Federal role, then better measures of "financial distress" need to be developed and data gathered nationally. The National Commission on the Financing of Postsecondary Education suggested that data be collected on the numbers of institutional closings and mergers, by type and control of institution, and on changes in enrollment patterns.16/ Key institutional income and expenditure components which reflect change should be identified, and data about the so-called "tuition gap" (tuition revenues minus instruction costs) should be gathered. Postsecondary institutions should provide statistics which identify the frequency and size of reported operating deficits and reflect substantial changes in plant assets and institutional indebtedness in order to document "financial distress."

The National Commission on the Financing of Postsecondary Education also noted the following data need in this general area:

> Information about the nature and size of enrollment changes among different types of institutions is central to assessing their financial stability. Unfortunately, opening fall enrollments, which provide only a crude indication of what is taking place, are the only enrollment data collected by NCES that can be related to HEGIS financial data and other relevant institutional information. In order to estimate the full financial impact of enrollment changes, it is necessary to have an enrollment count that is directly related to tuition and fee income and that shows net gains or losses over the academic year.17/

The Carnegie Commission recommended "...all appropriate agencies--the U.S. Office of Education, the Southern Regional Education Board, the Western Interstate Commission for Higher Education and similar bodies--give high priority to the development of more adequate data on the behavior of costs, income, and output in higher education."18/

The Newman Task Force and others have pointed out the importance of collecting data on cost effectiveness from institutions. They define cost effectiveness as "the effects of alternative structures and environments on student learning,...

16/ In Financing Postsecondary Education..., op. cit., pp. 193-194.

17/ Ibid., p. 197.

18/ In The More Effective Use of Resources: An Imperative for Higher Education. (New York: McGraw-Hill, 1972), p. 47.

in terms of the resources utilized."19/ The National Commission on the Financing of Postsecondary Education and others have noted the need for data which could help measure the productivity of educational institutions and the quality of their outputs. Quality is admittedly difficult to measure; data on institutional salaries, institutional costs per student, and student scores on tests such as the Graduate Record Exam, etc.,provide guidance.

Finally, as noted in chapter III, the National Commission on the Financing of Postsecondary Education gave careful consideration to the need for disclosing uniform procedures for reporting per-student costs (chapter 8 of their report). Data needs in this area have been noted in the paragraphs above.

E. Research

Federal planners need data to assist them in examining the impact of Federal research funds on colleges and universities. Their findings will help define the future Federal role in this area.

Data are needed which describe how institutions conduct this research, including costs (both Federal and institutional funds), personal characteristics of those working on the research, characteristics of research facilities and their location, and the administrative structure of these research activities within colleges and universities.

The impact of Federal research funds on faculty, including the percent of faculty time spent on research versus teaching, fields of expertise, relationships of the research to subjects taught, and data on amounts of salaries paid by research funds, should be researched.

Data on the impact of Federal research funds on students describe imagiportant, and should include the numbers and personal characteristics of students participating in research projects at colleges and universities. The number of students receiving financial support from research monies should be ascertained together with the personal characteristics and fields and levels of study of these recipients. How students learn through their participation in such projects and what they learn require analysis. Data collection designs should reflect that student support is really manpower development and equal opportunity assistance.

Various research support mechanisms utilized by the Federal Government must be examined in order to define their different impacts on colleges and universities. Such mechanisms include: (1) grants to individuals or small groups for specific research projects; (2) grants to institutions for the benefit of the school; and (3) university development grants involving substantial funding over several years. More information is needed on the costs of Federal research to postsecondary institutions, such as contributed equipment, faculty time, etc., as well as the income received by institutions, such as fees, overhead, etc.

19/ In The Second Newman Report, op. cit., p. 107.

The flow of Federal research funds has shifted by field of inquiry and has fallen and risen over time. Data are needed at the Federal level about the impact of such funding fluctuations on institutions, by type, control, and field of study. For example, have faculty been hired, students enrolled in graduate work, space rented, only to find that the research support continues for merely a short period and the institution must bear the cost if it wishes to continue the activity? One data recommendation in this area has been that the Federal Government "publish annually a five-year projection of scientific and technological trends, probable national needs for scientific resources, and expected levels of Federal support in various areas..."20/

Finally, the Federal Government needs data which describe how colleges and universities are responding to multidisciplinary research needs, in particular on the kinds of innovative organizational and functional arrangements being tried to meet the new demands of federally-sponsored multidisciplinary research.

Data to respond to all these questions about the nature and impact of Federal research on colleges and universities will assist Federal policymakers to analyze the future capabilities of these institutions to meet the needs described above.

The next chapter briefly compares these broad categories of data needs with current NCES data-collection activities.

20/ Wolfle, The Home of Science, op. cit., p. 159.

V. A BRIEF COMPARISON OF NCES CURRENT POSTSECONDARY DATA COLLECTION WITH DATA NEEDS

A brief review of NCES current data-collection efforts has been made and these activities compared with the broad data-collection needs described in chapter IV.

The outline that follows arranges currently available NCES data-collection instruments and reports by the policy and data need categories identified in chapters III and IV. Each data-collection instrument or report is organized under the categories for which it provides relevant information. Some instruments--forms or reports--provide data useful to the study of more than one category; such reports are repeated wherever necessary in the outline.

The authors were unable to obtain copies of collection instruments for several NCES studies underway but at present not completed. Appendix C of this report includes a complete list of the NCES documents and reports reviewed for this study, and notes at least two which could not be obtained from NCES for use in this review.

I. EQUAL OPPORTUNITY

A. Access

1. National Longitudinal Study of the High School Class of 1972
2. Higher Education: Fall Enrollment in Higher Education, 1971
3. Opening Fall Enrollment in Higher Education, Part A--Summary Data, 1968
4. Opening Fall Enrollment in Higher Education, 1974
5. Postsecondary School Enrollment Survey, 1974
6. Postsecondary Career School Survey, 1973
7. Students Enrolled for Advanced Degrees, Fall 1974
8. Vocational Education: Directory of Postsecondary Schools with Occupational Programs
9. Vocational Education: Inventory of Vocational Education Statistics Available in Federal Agencies
10. Higher Education: Institutions of Higher Education, Index by State and Congressional District, June 1973
11. Higher Education and Basic Student Charges, 1968-69

B. Choice

1. Postsecondary Career School Survey, 1973
2. Survey of Programs and Enrollments, 1973
3. Opening Fall Enrollment in Higher Education, 1974
4. Opening Fall Enrollment in Higher Education, Part A--Summary Data, 1968
5. National Longitudinal Study of the High School Class of 1972
6. Higher Education: Residence and Migration of College Students, Fall 1968
7. Higher Education: Institutions of Higher Education--Index by State and Congressional District, June 1973
8. Vocational Education: Directory of Postsecondary Schools with Occupational Programs (Public and Private), 1971
9. Higher Education Basic Student Charges, 1968-69
10. Vocational Education: Inventory of Vocational Education Statistics Available in Federal Agencies
11. National Longitudinal Survey of the High School Class of 1972

C. Opportunity

1. Opening Fall Enrollment in Higher Education, 1974
2. Opening Fall Enrollment in Higher Education, Part A--Summary Data, 1968
3. Junior-Year Science, Mathematics, and Foreign Language Students, First-Term,1962-63
4. National Longitudinal Survey of the High School Class of 1972
5. Survey of Programs and Enrollments: Postsecondary Schools, 1973
6. Vocational Education: Inventory of Vocational Education Statistics Available in Federal Agencies

(Selected Items From Other Surveys and Reports)

1. Employees in Institutions of Higher Education, 1972-73
2. Degrees and Other Formal Awards Conferred Between July 1, 1973 and June 30, 1974
3. Salaries and Tenure of Full-Time Instructional Faculty, 1974-75

II. MANPOWER

A. Supply and Demand

1. Higher Education: Teaching and Research Staff by Academic Field in Institutions of Higher Education, Fall 1968
2. Students Enrolled for Advanced Degrees, Fall 1974
3. Degrees and Other Formal Awards Conferred Between July 1, 1973 and June 30, 1974
4. Numbers and Characteristics of Employees in Institutions of Higher Education, Fall 1967
5. Junior-Year Science, Mathematics, and Foreign Language Students, First-Term 1962-63

6. Employees in Institutions of Higher Education, 1972-73

B. Specific Manpower Needs

1. Postsecondary Career School Survey, 1973
2. Directory of Postsecondary Schools with Occupational Programs, 1971
3. Vocational Education: Inventory of Vocational Educational Statistics Available in Federal Agencies
4. Survey of Programs and Enrollments in Postsecondary Schools, 1973
5. Projections of Educational Statistics for 1981-88 (1972 Edition)
6. Salaries and Tenure of Full-Time Instructional Faculty, 1974-75
7. 1973-74 Education Directory

(Selected Items From Other Surveys and Reports)

1. Survey of High School Seniors and Recent Graduates, 1974
2. Survey from National Longitudinal Study of the High School Class of 1972

III. RECURRENT LEARNING

A. Continuing, Extension, Adult, Self-Improvement, and Lifelong Learning Programs

1. Continuing Education: Noncredit Activities in Institutions of Higher Education, 1967-68, Professional and Technical Refresher Courses
2. Continuing Education: Noncredit Activities in Institutions of Higher Education: Registrations, 1967-68
3. Fall Enrollment in Higher Education, 1971

IV. DIVERSITY

A. Stimulating Institutional Diversity

1. Continuing Education: Noncredit Activities in Institutions of Higher Education, 1967-68, Professional and Technical Refresher Courses
2. Higher Education: A Taxonomy of Instructional Programs in Higher Education (1970)
3. Survey of Programs and Enrollments in Postsecondary Schools, 1973
4. Postsecondary Career School Survey, 1973
5. Higher Education: Residence and Migration of College Students, 1968
6. Higher Education: Institutions of Higher Education--Index by State and Congressional District, June 1973
7. Financial Statistics of Institutions of Higher Education for Fiscal Year Ending 1974
8. Financial Statistics of Institutions of Higher Education: Federal Funds, 1965-66 and 1966-67
9. 1973-74 Education Directory

B. New Students, New Education

1. Continuing Education: Noncredit Activities in Institutions of Higher Education--Registrations, 1967-68
2. Higher Education: A Taxonomy of Instructional Programs in Higher Education (1970)
3. Vocational Education: Inventory of Vocational Education Statistics Available in Federal Agencies
4. Degrees and Other Formal Awards Conferred Between July 1, 1973 and June 30, 1974
5. Students Enrolled for Advanced Degrees, Fall 1974
6. Opening Fall Enrollment in Higher Education, 1974
7. Survey of Programs and Enrollments in Postsecondary Schools, 1973
8. Postsecondary Career School Survey, 1973

(Selected Items From Other Surveys and Reports)

1. Higher Education: Inventory of Physical Facilities in Institutions of Higher Education, Fall 1969
2. Higher Education Basic Student Charges, 1968-69
3. Higher Education: Earned Degrees Conferred, 1969-70, Summary Data
4. Higher Education: Fall Enrollment in Higher Education, 1971
5. Higher Education: Number and Characteristics of Employees in Institutions of Higher Education, Fall 1967
6. Higher Education: Teaching and Research Staff by Academic Field in Institutions of Higher Education, Fall 1968
7. Salaries and Tenure of Full-Time Instructional Faculty, 1974-75
8. Employees in Institutions of Higher Education, 1972-73

V. RESEARCH

A. Support for Research in the National Interest

1. Higher Education: Number and Characteristics of Employees in Institutions of Higher Education, Fall 1967
2. Higher Education: Teaching and Research Staff by Academic Field in Institutions of Higher Education, Fall 1968
3. Financial Statistics of Institutions of Higher Education for Fiscal Year 1974
4. Higher Education: Inventory of Physical Facilities in Institutions of Higher Education, Fall 1967

The compilers of this report matched, on an item-by-item basis, the kinds of data collected currently by NCES with the data needs described in chapter IV and outlined in appendix B, part II.

At least three major areas of identified data needs were not part of current NCES data-collection activities. These were:

1. regular data collection about those who do not enter postsecondary education;

2. regular data collection about participants in postsecondary education which identifies their age, race or ethnic group, and other personal characteristics of these enrollees; and

3. regular data collection which includes the broad range of postsecondary institutions and also includes data about innovative or experimental efforts at colleges and universities.

The following paragraphs describe each of these three areas in more detail.

As was noted in chapter IV, data defining the characteristics and circumstances of those who do not enter postsecondary education are especially important to the Federal Government. The Federal goal of equal opportunity requires that statistics be available concerning those who face barriers in access to postsecondary education, in choice of institution, and in opportunity to continue through postsecondary education with any necessary assistance which might be required. Such data are not necessary each year, but should be collected regularly, thus permitting Federal planners to assess the progress of their efforts toward equal opportunity.

Regular data collection about postsecondary education participants must include more personal characteristic variables than simply sex. If the policy issues noted in the discussion of equal opportunity and recurrent education are to be resolved, then the Federal Government must have statistics about participants (and, as noted above, nonparticipants), which, at the same time, identify age, race or ethnic group, and financial data. Many Federal programs, for instance, seek especially to aid disadvantaged students; recurrent education is very important to adults. Therefore assessment of the progress of Federal efforts in these areas requires personal characteristic data about enrollees at all levels, in all fields, and in all types of postsecondary institutions.

Finally, both the range of postsecondary institutions and their diverse efforts to provide both traditional and new forms of education to their students must be surveyed regularly. Using the FICE definition of a postsecondary institution, NCES should make regular (if not annual) data-collection efforts in all types of institutions this definition encompasses, especially proprietary institutions and other schools in the noncollegiate area. Policy issues dealing with the diversity of postsecondary institutions, as well as with the equal opportunity of students attending them, cannot be resolved without regular statistical efforts in this area. Data on new approaches to postsecondary education (new types of institutions, new teaching and learning techniques) are also needed. The Federal Government needs relevant statistics in order to analyze the future of postsecondary education and the possibilities for replicating successful new approaches at other postsecondary institutions.

Other data needs are noted throughout chapter IV and therefore are not repeated here.

In reviewing NCES' current data-collection efforts, many items noted in the various categories of necessary data actually were found to have been collected by NCES at one time or another. For example, the National Longitudinal Study of

the High School Class of 1972 asked many questions relevant to the data needs identified in this study. Most of the needed data should, however, be collected regularly, annually or biennially, as well as through the useful methodology of a longitudinal study. Data about student migration, last collected by NCES in 1968, should be updated every 2 or 3 years at most. Surveys of non-collegiate institutions and their students should be regular, ongoing, and continuous projects.

In other words, the problem is one of timing and frequency of data-collection. Costs are understandably high, and in some cases NCES may well have to use samples rather than uinverse surveys.

It was not the task of this survey to analyze costs, benefits, or NCES manpower requirements of more frequent data collection; NCES will undoubtedly perform such analyses itself. But if NCES is to respond fully to the requirements and challenges posed by the Education Amendments of 1974, it must consider increasing the scope of its data-collection efforts.

In response to these challenges, chapter VI offers suggestions for a new NCES role in postsecondary data collection at the Federal level.

VI. A SUGGESTED ROLE FOR NCES IN POSTSECONDARY EDUCATION

The data needs noted in chapter IV are far-ranging. They reflect the broad dispersal of Federal programs supporting postsecondary education and the important policy issues underlying them. The identified data needs call for varied collection methodologies, including surveys, samples, and case studies.

It is evident that NCES' available funds and capabilties for postsecondary data collection will not suffice to meet the data needs identified here. NCES should not, however, ignore any of the identified needs or set priorities for data collection which might delay information needed to resolve major Federal policy issues. Rather, NCES could consider its role in a very different way. The Center does not have to be the major collector of all the necessary postsecondary education data; instead it might consider itself the chief coordinator of all such data. This role would confer substantial advantages on NCES.

For example, some of the data identified as needed in chapter IV can be collected more efficiently by agencies other than NCES. Manpower forecasting data could continue to be assembled by the Department of Labor and the Census Bureau; health manpower statistics relevant to postsecondary education could continue to be collected by the HEW Health Resources Administration; data on Federal research funds going to colleges and universities could continue to be collected by the National Science Foundation. NCES need not collect all necessary data itself; most sources mentioned have data tapes NCES could copy. Though data definitions might not be exactly alike in these various collection instruments, interested researchers can link many of these data sources. The Center should utilize other data sources wherever it can, coordinate statistics wherever possible, and collect data itself only when no other data sources exist and where NCES itself would be the most efficient data collector.

This concept of an NCES data coordination role is broad and argues that NCES should be a National Center. The Education Amendments of 1974 required NCES to expand its operations and its influence on postsecondary education data collection at the Federal level, in coordination with the States and with the postsecondary education community of associations, institutions, and individual researchers. This expanded role is explained in detail below. The chart at the end of the chapter presents the new role in relation to other agencies and organizations involved in postsecondary data collection.

Within the Office of Education and the National Institute for Education are numerous sources of important postsecondary education data which should be tapped by NCES. For example, NCES should annually collect copies of data tapes describing participants in Office of Education student financial aid programs. These

data are broken down by State, by institution and by congressional district. Similar copies should be made of fiscal year data tapes of other postsecondary education programs. NCES would hold such tape copies and make them available to other Federal policymakers and researchers. In addition, NCES should collect copies of data tapes from all relevant planning and evaluation studies conducted within the Office of Education and the National Institute of Education as data from these tapes would assist Federal postsecondary education planners. Finally, NCES should collect on tape the legislative authorization for every program, operating and nonoperating, within OE and NIE, holding it available to the Congress, which is especially interested in such information.

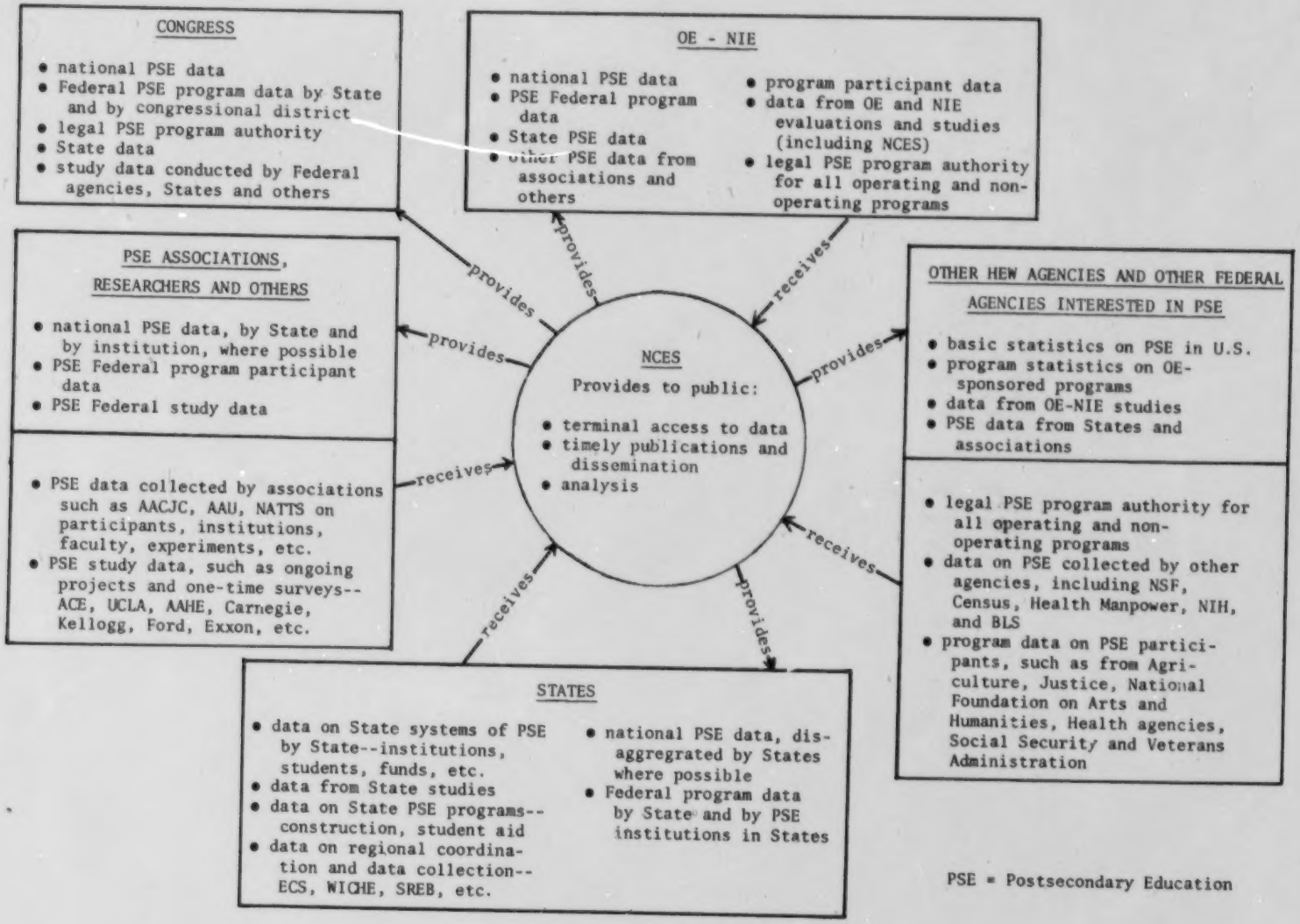
Thus NCES would receive data from all relevant OE and NIE operating programs, and also from all relevant OE and NIE evaluations and other statistical studies. Such data would be broken down (as far as possible) by region, State, institution and participant. Having received all of these data, NCES would be much better placed to provide data to those needing such information within OE, in other Federal agencies, in the Congress, and in the postsecondary education community. After reviewing all received data, NCES could incisively justify additional data collection needed to respond to important postsecondary education policy issues. Costs would be lowered through the elimination of any unnecessary data collection.

NCES should not only receive and provide OE-NIE postsecondary program data, but should require the equivalent from other HEW components and the 24 other Federal agencies supporting postsecondary education. No other government agency, it should be noted, has a National Center for Education Statistics. This does not suggest that NCES collect all data normally collected by these other agencies. Instead, it suggests a role for NCES similar to that it plays within OE and NIE. NCES would receive from the other agencies: (1) copies of data on postsecondary education activities and of studies assembled by these agencies (including the National Science Foundation, the Veterans' Administration, the National Institutes of Health, the Social Security Admininstration, and the Bureau of Health Resources Development); (2) copies of program participant data tapes from these agencies operating such programs; and (3) legislative references for these programs, operating and nonoperating. NCES would then add all these Federal postsecondary data to its data bank and make them available to interested Federal policymakers and other planners.

NCES would operate in a similar fashion vis-a-vis States and postsecondary education associations, researchers, and others. NCES would receive copies of data tapes about the postsecondary activities of these groups and add them to the NCES data bank. NCES would then be in a position to provide to States and others information about postsecondary activities at Federal, State, and local levels. NCES would also collect copies of data from study commissions and other researchers, as was done to create the data base of the National Commission on the Financing of Postsecondary Education.

Preservation of data confidentiality is assumed in all these NCES activities. NCES would provide the public access to its data bank (in keeping with the requirements of confidentiality) through computer terminals, additional copies of data tapes, and timely publications.

Through the coordination of all this information NCES would accumulate a broad data base on postsecondary education activities, making it truly a National Center and enabling it to assess the "conditions" of education, as required in the Education Amendments of 1974.


CONGRESS
• national PSE data
• Federal PSE program data by State and by congressional district
• legal PSE program authority
• State data
• study data conducted by Federal agencies, States and others
OE - NIE
• national PSE data
• PSE Federal program data
• State PSE data
• other PSE data from associations and others
• program participant data
• data from OE and NIE evaluations and studies (including NCES)
• legal PSE program authority for all operating and non-operating programs
PSE ASSOCIATIONS, RESEARCHERS AND OTHERS
• national PSE data, by State and by institution, where possible
• PSE Federal program participant data
• PSE Federal study data
• PSE data collected by associations such as AACJC, AAU, NATTS on participants, institutions, faculty, experiments, etc.
• PSE study data, such as ongoing projects and one-time surveys--ACE, UCLA, AAHE, Carnegie, Kellogg, Ford, Exxon, etc.
NCES
Provides to public:
• terminal access to data
• timely publications and dissemination
• analysis
OTHER HEW AGENCIES AND OTHER FEDERAL AGENCIES INTERESTED IN PSE
• basic statistics on PSE in U.S.
• program statistics on OE-sponsored programs
• data from OE-NIE studies
• PSE data from States and associations
• legal PSE program authority for all operating and non-operating programs
• data on PSE collected by other agencies, including NSF, Census, Health Manpower, NIH, and BLS
• program data on PSE participants, such as from Agriculture, Justice, National Foundation on Arts and Humanities, Health agencies, Social Security and Veterans Administration
STATES
• data on State systems of PSE by State--institutions, students, funds, etc.
• data from State studies
• data on State PSE programs--construction, student aid
• data on regional coordination and data collection--ECS, WICHE, SREB, etc.
• national PSE data, disaggregrated by States where possible
• Federal program data by State and by PSE institutions in States
provides
receives
PSE = Postsecondary Education

APPENDIX A

LISTING OF FEDERAL POSTSECONDARY EDUCATION PROGRAMS

FEDERAL POSTSECONDARY EDUCATION PROGRAMS

PROGRAM	OMB CATALOG NUMBER
DEPARTMENT OF AGRICULTURE	
Agricultural Research Service	
Basic and Applied Research	10.001
Cooperative State Research Service	
Grants for Scientific Research	10.200
Cooperative Forestry Research	10.202
Payments to Agricultural Experiment Stations	10.203
Rural Development Research	10.204
Extension Service	
Cooperative Extension Service	10.500
Forest Service	
Forestry Cooperative Research	10.651
Forestry Research	10.652
DEPARTMENT OF COMMERCE	
Economic Development Administration	
Economic Development--Grants and Loans for Public Works and Development Facilities	11.300
Economic Development University--Centers Program	------
Maritime Administration	
U.S. Merchant Marine Academy	11.507
State Marine Schools	11.506
National Oceanic and Atmospheric Administration	
Sea Grant Support	11.417
DEPARTMENT OF DEFENSE	
Defense Civil Preparedness Agency	
Civil Defense Education	12.323
Civil Defense Staff College	------
Civil Defense Staff College--Student Expense Program	12.314
Civil Defense University Extension	12.320

Defense Supply Agency	
Machine Tool Loan to Educational Institutions	12.001
Office of the Secretary	
Off-Duty Education	------
Overseas Dependents Education	------
Professional Education	------
Research and Development	------
Reserve Officers Training Corps (ROTC)	------
Service Academies	------
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE	
Administration on Aging	
Aging--Special Programs for the Aging	13.756
Alcohol, Drug Abuse, and Mental Health Administration	
Alcohol Research Development Awards	13.271
Alcohol Research Programs	13.273
Alcohol Training Programs	13.274
Drug Abuse Development Awards	13.277
Drug Abuse Research Manpower Fellowship Program	13.278
Drug Abuse Research Programs	13.279
Drug Abuse Training Programs	13.280
Mental Health Fellowships	13.241
Mental Health Research Development Awards	13.281
Mental Health Research Grants	13.242
Mental Health Training Programs	13.244
Center for Disease Control	
Disease Control Laboratory Improvement	13.201
Disease Control Research Grants	13.202
Disease Control--Smoking and Health	13.250
Disease Control--Training Public Health Workers	13.203
Disease Control--Venereal Disease	13.205
Occupational Health Demonstration Grants	13.265
Occupational Research Grants	13.262
Occupational Health Training Grants	13.263
Food and Drug Administration	
Food Research Training Grants	13.104
Food Research Grants	13.103
Radiological Health Research Grants	13.105
Radiological Health Training Grants	13.106
Health Resources Administration	
Associated Health Educational Assistance--Special Programs	------
Associated Health Professions--Special Improvement Grants	13.377
Associated Health Professions--Special Projects Grants and Contracts	13.305

Associated Health Professions--Traineeship Grants	13.303
Comprehensive Health Planning--Training, Studies, and Demonstrations	13.208
Auxiliary Utilization Training Grants	13.319
Dental Health Continuing Education Training Grants	13.320
Family Medicine--Training Grants	13.379
Graduate Training in Public Health--Project Grants	13.338
Health Manpower Education Initiative Awards	13.380
Health Professions Capitation Grants	13.339
Health Professions--Financial Distress Grants	13.381
Health Professions--Scholarships	13.341
Health Professions--Special Projects	13.383
Health Professions--Start-Up Assistance and Conversion Grants	13.384
Health Professions--Student Loans	13.342
Health Professions Teaching Facilities--Construction Grants	13.340
Health Professions Teaching Facilities--Loan Guarantees and Interest Subsidies	13.378
Health Professions Teaching Personnel--Training, Traineeships, and Fellowships	13.385
Health Services Research and Development--Fellowships and Training	13.225
Health Services Research and Development--Grants and Contracts	13.226
Nurse Scientist Graduate Training Grants	13.362
Nurse Training Improvement--Special Projects	13.359
Nursing Capitation Grants	13.386
Nursing Professions--Talent Utilization	13.387
Nursing Research Project Grants and Contracts	13.361
Nursing Scholarships	13.363
Nursing School Construction	13.369
Nursing Schools--Financial Distress Grants	13.388
Nursing Student Loans	13.364
Professional Nurse--Traineeships	13.358
Professional Public Health Personnel--Traineeships	13.366
Regional Medical Programs (RMP's)	------
Schools of Public Health--Grants	13.370
Special Predoctoral and Postdoctoral Fellowships in Nursing Research	13.360

Health Services Administration

Crippled Children's Services	13.211
Dental Health of Children	13.212
Emergency Health--Community Preparedness	13.214
Emergency Medical Services Systems Research	13.285
Family Planning Projects	13.217
Family Planning Research--Service Delivery Improvement	------
Family Planning Services--Training Grants and Contracts	13.260
Health Care of Children and Youth	13.218
Intensive Infant Care Projects	13.230
Maternal and Child Health Research	13.231
Maternal and Child Health Services	13.232

Maternal and Child Health Training	13.233
Maternal and Infant Care Projects	13.234
National Institutes of Health	
Allergy and Infectious Diseases	13.855 through 13.858
Arthritis, Metabolism and Digestive Diseases	13.846 through 13.849
Cancer	13.393 through 13.396, 13.399
Cancer--Construction	13.392
Cancer--Research Centers	13.397
Cancer Research Manpower	13.398
Child Health and Human Development	13.864 through 13.866
Dental Research	13.840 through 13.845
Environmental Health Sciences	13.872 through 13.876
Eye Research	13.867 through 13.871
General Medical Sciences	13.858 through 13.863
Heart and Lung Research	13.837 through 13.839
Biomedical Communications Research Contracts	13.836
Biomedical Scientific Publications Grants	13.349
Medical Library Assistance--Library Research Grants	13.348
Medical Library Assistance--Research Grants	13.351
Medical Library Assistance--Special Scientific Project Grants	13.352
Medical Library Assistance--Training Grants	13.353
Neurological Diseases and Stroke	13.851 through 13.854
Animal Resources	13.306
Animal Resources--Fellowships	13.367
Animal Resources--Training	13.368
Biotechnology Resources	13.371
General Clinical Research Centers	13.333
General Research Support Grants	13.337
Minority Schools Biomedical Support	13.375
Office of the Assistant Secretary for Education	
Fund for the Improvement of Postsecondary Education	13.538
Office of Education	
Educationally Deprived Children--Handicapped	13.427
Handicapped Early Childhood Assistance	13.444
Handicapped Innovative Programs--Deaf-Blind Centers	13.445
Handicapped Media Services and Captioned Films	13.446
Handicapped Physical Education and Recreation Training	13.448
Handicapped Regional Resource Centers	13.450
Handicapped--Research and Demonstration	13.443
Handicapped Teacher Education	13.451
Special Programs for Children with Specific Learning Disabilities	13.520
Educational Personnel Development--Educational Leadership	13.514
Educational Personnel Development--Media Specialists	13.508
Educational Personnel Development--Pupil Personnel Specialists	13.509

Educational Personnel Development--Urban/Rural School Development	13.505
Educational Personnel Training--Special Education	13.417
Educational Staff Training--School Personnel Utilization	13.425
Teacher Corps--Operations and Training	13.489
Teacher Training in Developing Institutions	13.507
Training of Teacher Trainers	13.490
Vocational Education Personnel Development Awards	13.503
Vocational Education Personnel Development--Professional Personnel Development for States	13.504
Emergency School Aid Act	13.525 through 13.530, 13.352
Basic Educational Opportunity Grant Program	13.539
College Personnel Development--Allen J. Ellender Fellowships	------
College Personnel Development, Fellowships--Fellowships for the Disadvantaged	------
College Teacher Graduate Fellowships	13.407
Cuban Education--Student Loans	13.409
Supplemental Educational Opportunity Grants (SEOG)	13.418
Higher Education Facilities Construction	13.458, 13.459
Higher Education Academic Facilities Construction--Interest Subsidization	13.457
Higher Education Academic Facilities--State Administration	13.455
Higher Education Act Insured Loans	13.460
Higher Education--Cooperative Education	13.510
Higher Education--Cost for Veterans' Instruction	13.540
Higher Education--Land-Grant Colleges and Universities	13.453
Higher Education Development--Institutes and Short-Term Training	13.461
Higher Education Personnel Fellowships	13.462
Strengthening Developing Institutions	13.454
Higher Education Work-Study	13.463
National Direct Student Loan Program	13.469 through 13.471
Postsecondary Education Statewide Comprehensive Planning Grants Program	13.550
Special Services for Disadvantaged Students in Institutions of Higher Education	13.482
State Student Incentive Grants	------
Talent Search	13.488
University Community Service--Grants to States	13.491
Upward Bound	13.492
College Library Resources	13.406
Higher Education Instructional Equipment	13.518
Library Training Grants	13.468
Research and Development--Library Research Demonstration	13.475
Adult Education--Special Projects	13.401
Adult Education--Teacher Education	13.402
Vocational Education--Basic Grants to States	13.493
Vocational Education--Consumer and Homemaking	13.494
Vocational Education--Cooperative Education	13.495
Vocational Education--Curriculum Development	13.496
Vocation Education--Innovation	13.502

Vocational Education--Research	13.498
Vocational Education--Special Needs	13.499
Vocational Education--Work Study	13.501
Bilingual Education Training	------
Educationally Deprived Children--Local Education Agencies	13.428
Educationally Deprived Children--Migrants	13.429
Educationally Deprived Children in State-Administered Institutions Serving Neglected or Delinquent Children	13.431
Follow Through	13.433
Preschool, Elementary, and Secondary Education--Special Programs and Projects	13.516
Ethnic Heritage Studies Program	------
Foreign Language and Area Studies--Fellowships, Centers, Research	13.434 through 13.436
Fulbright-Hays Training Grants--Faculty Research, Foreign Curriculum Consultants, Group Projects, Doctoral Dissertation Research Abroad	13.438 through 13.441
Teacher Exchange	13.437
Educational Broadcasting Facilities	13.413
Educational Personnel Training Grants--Career Opportunities (COP)	13.421
Civil Rights Technical Assistance and Training	13.405
Drug Abuse Prevention	13.420
Environmental Education	13.522
Right to Read	13.533
National Institute of Education	
Educational Research and Development	13.575
Office of the Secretary	
Special Schools	------
Child Development--Child Welfare Research and Demonstration Grants	13.608
Surplus Property Utilization	13.606
Physical Fitness Clinics	13.617
Social and Rehabilitation Service	
Social and Rehabilitation Service Research	13.757
Developmental Disabilities--Demonstration Facilities and Training	13.760
Comprehensive Social and Rehabilitation Training	13.758
Developmental Disabilities--Special Projects	13.759
Rehabilitation Services and Facilities--Basic Support	13.746
Rehabilitation Services and Facilities--Special Projects	13.763
Vocational Rehabilitation Services for Social Security Disability Recipients	13.747
Youth Development and Delinquency Prevention	13.610
Social Security Administration	
Social Security--Disability Insurance	13.802
Social Security--Retirement Insurance	13.803
Social Security--Survivors Insurance	13.805

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Community Development	
Model Cities Supplemental Grants	14.300
Community Planning and Management	
Community Development Training Grants	14.202
Urban Studies Fellowships	14.217
Office of Policy Development and Research	
General Research and Technology Activity	14.506

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs	
Indian Community Development	15.104
Haskell Junior College	------
Indian Employment Assistance	15.108
Indian Law Enforcement Services	15.131
Indian Agricultural Extension	15.101
Indian Loans	15.124
Indian Education--Adults	15.100
Indian Education--Colleges and Universities	15.114
Bureau of Mines	
Mine Health and Safety Education and Training	15.352
Mine Health and Safety Research--Grants and Contracts	15.306
Mineral Resources and Environmental Development	15.303
National Park Service	
Archeological Investigations and Salvage	15.908
Historic American Buildings Survey	15.903
Office of Water Resources Research	
Additional Water Resources Research	15.950
Water Resources Research--Assistance to States for Institutes	15.951
Water Resources Research--Matching Grants to State Institutes	15.952

DEPARTMENT OF JUSTICE

Bureau of Narcotics and Dangerous Drugs	
Law Enforcement Assistance--Narcotics and Dangerous Drugs Training	16.004
Federal Bureau of Investigation	
Law Enforcement Assistance--FBI Advanced Police Training	16.300
Law Enforcement Assistance--FBI Field Police Training	16.302
Law Enforcement Assistance Administration	
Law Enforcement Assistance--Educational Development	16.511
Law Enforcement Assistance--Internships	16.512

Law Enforcement Assistance--Training	16.513
Law Enforcement Education Program--Student Financial Aid	16.504
Law Enforcement Research and Development--Graduate Research Fellowships	16.505
Law Enforcement Reserach and Development--Project Grants	16.507
Organized Crime Prosecutorial Training	16.514

DEPARTMENT OF LABOR

Employment Standards Administration

Coal Mine Workers' Compensation	17.307 (& 13.806)

Manpower Administration

Concentrated Employment Program	17.204
Job Corps	17.211
Manpower Research and Development Program	17.233
Manpower Research--Doctoral Dissertation Grants	17.218
Manpower Research--Institutional Grants	17.219
Manpower Research Project Grants (Small Grants)	17.221
Public Employment Program (PEP)	17.229
Work Incentive Program (WIN)--Training and Allowances	17.226
Manpower Development and Training--Institutional Training	17.215

Occupational Safety and Health Administration

Occupational Safety and Health	17.500

DEPARTMENT OF STATE

Agency for International Development (AID)

Institutional Grants Program (211d)	19.006
Central Research	19.007

Bureau of Educational and Cultural Affairs

Educational Exchange--Graduate Students	19.101
Educational Exchange--University Lecturers and Research Scholars	19.102

DEPARTMENT OF TRANSPORTATION

Office of University Research

Program of University Research	20.750

U.S. Coast Guard

Coast Guard Academy	------

Federal Aviation Administration

Airport Development Aid Program	20.102
Aviation Education	20.100

859

Federal Railroad Administration	
High-Speed Ground Transportation Research and Development	20.300
Railroad Research	20.302
Urban Mass Transportation Administration	
Urban Mass Transportation Grants for University Research and Training	20.502
Urban Mass Transportation Managerial Training Grants	20.503
DEPARTMENT OF THE TREASURY	
Internal Revenue Service	
Tax Information and Education	21.003
A C T I O N	
Peace Corps	
Peace Corps Intern Program and Recruitment Program	------
University Year for ACTION	72.004
APPALACHIAN REGIONAL COMMISSION	
Appalachian Regional Commission	
Appalachian State Research, Technical Assistance, and Demonstration Projects	23.011
Appalachian Vocational Education Facilities and Operations	23.012
Appalachian Vocational and Technical Education Demonstration Grants	23.016
ATOMIC ENERGY COMMISSION	
Atomic Energy Commission	
Nuclear Science and Technology--Faculty and Student Participation	24.004
Nuclear Science and Technology--Faculty Training Institutes and Workshops	24.007 & 24.008
Nuclear Science and Technology--Research and Development	24.024
Nuclear Science and Technology--Research Reactor and Materials Assistance	24.011
Nuclear Science and Technology--Traineeship Program in Nuclear Engineering, Radiation Protection, and Environmental Sciences	24.020
U.S. CIVIL SERVICE COMMISSION	
Civil Service Retirement Fund	------
Intergovernmental Personnel Grants	27.012

DISTRICT OF COLUMBIA

District of Columbia Government: Board of Higher Education

Federal Government Support for District of Columbia Post-secondary Schools (Federal City College, D.C. Teachers College, and Washington Technical Institute)	------

ENVIRONMENTAL PROTECTION AGENCY

Offices of Air, Radiation, Research, Solid Waste, and Water Programs

Research and Development Contracts to Educational Institutions	------
Air Pollution Fellowships	66.002
Air Pollution Manpower Training Grants	66.003
Radiation Training Grants	66.201
Air Pollution Control Research Grants	66.501
Environmental Protection--Comprehensive Research Grants	66.500
Minority Institutional Research Support	------
Pesticides Research Grants	66.502
Radiation Research Grants	66.503
Solid Waste Research Grants	66.504
Water Pollution Control--Research, Development, and Demonstration	66.505
Solid Waste Training Grants	66.303
Water Pollution Control--Direct Training (WQO Short Courses)	66.417
Water Pollution Control--Research Fellowships	66.406
Water Pollution Control Training Grants	66.421

EXECUTIVE OFFICE OF THE PRESIDENT

Special Action Office for Drug Abuse Prevention

Drug Abuse Prevention--Pharmacological Research	73.001

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Research and Development in Space Sciences Technology	------

NATIONAL FOUNDATION ON THE ARTS AND HUMANITIES

National Endowment for the Arts--Promotion of the Arts	45.001 through 45.012
National Endowment for the Arts--Promotion of the Humanities	45.102 through 45.113, 45.115, 45.116

NATIONAL GALLERY OF ART

National Gallery of Art Extension Service	68.001

NATIONAL SCIENCE FOUNDATION (NSF)

Biological Sciences Research Project Support	47.002
Computer Innovation in Education	47.045

Computing Activities	47.003
Engineering Research Initiation Grants and Research Project Support	47.006 & 47.007
Environmental Sciences Research Project Support	47.008
Experimental Research and Development Incentives Programs	47.042
Fellowships and Traineeships Program	47.009
Institutional Grants for Research Management Improvement	47.044
Institutional Grants for Science	47.012
Instructional Improvement Implementation--Pre-College	47.019
Instructional Improvement Implementation--Higher Education	47.032
Science Education Materials and Instruction Development--Pre-College	47.020
Science Education Materials and Instruction Development--Higher Education	47.033
Intergovernmental Science Programs	47.036
International Cooperative Scientific Activities	47.014
International Decade of Ocean Exploration	47.037
International Travel Program	47.015
Materials Research Project Support	47.040
Mathematical and Physical Sciences Research Project Support	47.016
National and Special Research Programs	47.017
National Research and Development Assessment Program	47.043
National Research Centers	------
Oceanographic Facilities and Support	------
Polar Research Programs	47.001
Public Understanding of Science Program	47.038
Research Applied to National Needs (RANN)	47.041
Science Education--Problem Assessment and Experimental Projects	47.046
Science Information Activities	47.024 & 47.025
Scientific Activities (Special Foreign Currency Program)	47.039
Social Sciences Research Project Support	47.029
Undergraduate Student Development	47.034

RAILROAD RETIREMENT BOARD

Social Insurance for Railroad Workers	57.001

THE SMITHSONIAN INSTITUTION

Academic Appointments	60.002
Chesapeake Bay Center for Environmental Studies	60.004
Smithsonian Special Foreign Currency Grants for Museum Programs and Related Research	60.016
Visiting Research Appointments	60.019
Woodrow Wilson International Center for Scholars--Fellowships and Guest Scholar Programs	60.020

VETERANS' ADMINISTRATION (VA)

Department of Medicine and Surgery

Biomedical Research--Career Development Programs	------

8062

Biomedical Research--Contracts to Universities	64.001
Education and Training of Health Service Personnel	64.003
Exchange of Medical Information	64.004
Prosthetics Research	64.006

Department of Veterans Benefits

Pension and Compensation to Veterans' Widows and Children	64.102 & 64.105
Veterans Educational Assistance	64.111
Vocational Rehabilitation for Disabled Veterans	64.116
Dependents Educational Assistance	64.117

S863

APPENDIX B

OUTLINES OF FEDERAL POSTSECONDARY PROGRAMS, POLICY ISSUES, AND DATA NEEDS

INTRODUCTION

Part I of this appendix lists, in outline form, over 400 Federal programs that supported postsecondary education in fiscal year 1974. Each program is classified under one or more of five Federal goals for support of postsecondary education: (1) equal opportunity at all educational levels; (2) development of manpower; (3) recurrent education; (4) encouragement of institutional and student diversity; and (5) support for research. Some programs meet more than one goal and are therefore listed more than once.

Within each Federal goal, the listing of Federal programs has been further subdivided by program funding mechanism and administering agency. Many programs have more than one funding mechanism and therefore appear under several such mechanisms. For example, a program which provides both financial aid to students and a cost of education allowance to institutions would appear under the heading of "institutional support" as well as "student assistance."

This listing makes no judgments about the achievement of the goals under which the programs are listed; it merely shows the intended or apparent purpose.

Numbers following program names refer to their classification in recent editions of the Office of Management and Budget's Catalog of Federal Domestic Assistance. Unnumbered programs, to the best of our knowledge, have not appeared in the Catalog.

Readers wishing to know more about these programs are referred to the Catalog and to Pamela Christoffel, A Compilation of Federal Programs Financing Postsecondary Education, Washington, D.C.: National Commission on the Financing of Postsecondary Education, 1974.

Part II of this appendix outlines postsecondary policy issues and needed data categories.

PART I

FEDERAL GOAL: EQUAL OPPORTUNITY

I. INSTITUTIONAL SUPPORT

A. General Institutional Support

Department of Defense

Service Academies (------)

Department of Health, Education, and Welfare

Health Professions Capitation Grants (13.339)
Special Schools (------)

Department of the Interior

Haskell Junior College (------)

District of Columbia Government

Federal Support for D.C. Postsecondary Education (------)

B. Categorical Aid

Department of Health, Education, and Welfare

Associated Health Professions--Special Improvement Grants (13.377)
Family Medicine--Training Grants (13.379)
Health Manpower Education Initiative Awards (13.380)
Nursing Capitation Grants (13.386)
Nursing Professions Talent Utilization (13.387)
Schools of Public Health Grants (13.370)
Allergy and Infectious Diseases (Traineeships) (13.855-13.858)
Arthritis, Metabolism and Digestive Diseases (Traineeships) (13.846-13.849)
Cancer Research Manpower (Traineeships) (13.398)
Child Health and Human Development (Traineeships) (13.864-13.866)
Dental Research (Traineeships) (13.840-13.845)
Environmental Health Sciences (Traineeships) (13.872-13.876)
Eye Research (Traineeships) (13.867-13.871)
General Medical Sciences (Traineeships) (13.858-13.863)
Heart and Lung Research (Traineeships) (13.837-13.839)
Medical Library Training Grants (13.353)
Neurological Diseases and Stroke (Traineeships) (13.851-13.854)
Animal Resources Training Grants (13.368)
Minority Schools Biomedical Support (13.375)

Alcohol Research Development Awards (13.271)
Drug Abuse Research Development Awards (13.277)
Mental Health Research Development Awards (13.281)
EPDA Educational Leadership (13.514)
Teacher Corps (13.489)
Teacher Training in Developing Institutions (13.507)
Vocational Personnel Awards (13.503)
College Teacher Fellowships (13.407)
Educational Opportunity Centers (13.543)
Cooperative Education (13.510)
Cost for Veterans Instruction (13.540)
NDSL Loans to Institutions (13.469)
Special Services for Disadvantaged Students (13.482)
Talent Search (13.488)
Upward Bound (13.492)
Library Training Grants (13.468)
EPDA Career Opportunities (13.421)

ACTION

University Year for ACTION (72.204)

C. Construction Aid

Department of Health, Education, and Welfare

Health Professions Construction Grants (13.340)
Health Professions Loan Guarantees (13.378)
Nursing School Construction (13.369)
Academic Facilities Construction (13.458-13.459)
Academic Facilities Interest Subsidy (13.457)

II. STUDENT ASSISTANCE

A. Grants and Scholarships

1. Direct to Students

Department of Defense

Off-Duty Education (------)
Overseas Dependents Education (------)
Professional Education (------)
ROTC (------)
Service Academies (------)

Department of Health, Education, and Welfare

Special Fellowships in Nursing Research (13.360)
Basic Educational Opportunity Grants (13.539)
Social Security Disability Insurance (13.802)
Social Security Retirement Insurance (13.803)
Social Security Survivors Insurance (13.805)

Department of Housing and Urban Development

Urban Studies Fellowship (14.217)

Department of the Interior

Indian Higher Education Grants (15.114)

Department of Labor

Coal Mine Workers Compensation (17.307 & 13.806)

Department of State

Educational Exchange--Graduate Students (19.101)

Civil Service Commission

Civil Service Retirement Fund (------)

National Science Foundation

Graduate Fellowships (47.009)

Railroad Retirement Board

Social Insurance for Railroad Workers (57.001)

Smithsonian Institution

Academic Appointments (60.002)
Visiting Research Appointments (60.019)

Veterans' Administration

Pension and Compensation to Widows and Children (64.102 & 64.105)
Veterans Educational Assistance (64.111)
Dependents Educational Assistance (64.117)

2. Through Institutions

Department of Health, Education, and Welfare

Mental Health Fellowships (13.241)
Mental Health Research Development Awards (13.281)
Associated Health Professions--Grants for Advanced Training (13.303)
Family Medicine Training Grants (13.379)
Health Manpower Education Initiative Awards (13.380)
Health Professions Scholarships (13.341)
Health Professions Teacher Training (13.385)
Nurse Scientist Graduate Training Grants (13.362)
Nursing Scholarships (13.363)
Professional Public Health Personnel Traineeships (13.366)
Allergy and Infectious Diseases (Fellowships and Traineeships) (13.855-13.858)
Arthritis, Metabolism and Digestive Diseases (Fellowships and Traineeships) (13.846-13.849)
Cancer Research Manpower (Fellowships and Traineeships) (13.398)

Child Health and Human Development (Fellowships and Traineeships) (13.864-13.867)
Eye Research (Fellowships and Traineeships) (13.867-13.871)
General Medical Sciences (Fellowships and Traineeships) (13.858-13.863)
Heart and Lung Research (Fellowships and Traineeships) (13.837-13.839)
Neurological Diseases and Stroke (Fellowships and Traineeships) (13.851-13.854)
Animal Resources Fellowships (13.367)
Animal Resources Training Grants (13.368)
Alcohol Research Development Awards (13.271)
Drug Abuse Research Development Awards (13.277)
Drug Abuse Research Manpower Fellowships (13.278)
EPDA Educational Leadership (13.514)
Vocational Personnel Awards (13.503)
Ellender Fellowships (------)
CLEO Fellowships for the Disadvantaged (------)
College Teacher Fellowships (13.407)
Supplementary Educational Opportunity Grants (13.418)
EPDA Higher Education Fellowships (13.462)
Foreign Language and Area Studies Fellowships (13.434)
Fulbright-Hays Doctoral Research Abroad (13.441)
EPDA Career Opportunities (13.421)

Department of Justice

Law Enforcement R&D Fellowships (16.505)

Department of Labor

Manpower Research--Doctoral Research (17.218)

Atomic Energy Commission

Nuclear Science and Technology Graduate Training (24.020)

Environmental Protection Agency

Air Pollution Fellowships (66.002)

B. Loans

Department of Health, Education, and Welfare

Health Professions Student Loans (13.342)
Nursing Student Loans (13.364)
Cuban Student Loans (13.409)
Insured Loans (13.460)
NDSL Student Loans and Cancellations (13.470-13.471)

Department of the Interior

Indian Loans (15.124)

C. Work

Department of Health, Education, and Welfare

College Work-Study (13.463)

III. SUPPORT TO STATES, LOCAL GOVERNMENT AND OTHERS

Department of Health, Education, and Welfare

State Student Incentive Grants (------)
Vocational Education Basic Grants to States (13.493)
Vocational Education Consumer and Homemaking (13.494)
Vocational Education Special Needs (13.499)
Vocational Education Cooperative Education (13.495)
Vocational Education Work-Study (13.501)
Bilingual Education Training (------)

Department of Housing and Urban Development

Model Cities Grants (14.300)

Department of the Interior

Indian Employment Assistance (15.108)

Department of Labor

Concentrated Employment Program (17.204)
Job Corps (17.211)
Work Incentive Program (17.226)
MDTA Institutional Training (17.215)

FEDERAL GOAL: MANPOWER

I. INSTITUTIONAL SUPPORT

A. General Institutional Support

Department of Commerce

U.S. Merchant Marine Academy (11.507)
State Marine Schools (11.506)

Department of Defense

Civil Defense Staff College (------)
Service Academies (------)

Department of Health, Education, and Welfare

Health Professions Capitation Grants (13.339)
Nursing Capitation Grants (13.386)

Department of Transportation

U.S. Coast Guard Academy (------)

B. Categorical Aid

Department of Health, Education, and Welfare

Alcohol Training Program (13.274)
Drug Abuse Training Programs (13.280)
Occupational Safety and Health Training Grants (13.263)
Food Research Training Grants (13.104)
Radiological Health Training Grants (13.106)
Associated Health Special Programs (------)
Associated Health Professions--Special Improvement Grants (13.377)
Associated Health Professions--Special Project Grants (13.305)
Comprehensive Health Training (13.208)
Training in Expanded Auxiliary Management (13.319)
Dental Health Continuing Education Training (13.320)
Family Medicine Training Grants (13.379)
Graduate Training in Public Health (13.338)
Health Professions Special Projects (13.383)
Health Professions Start-Up and Conversion Grants (13.384)
Health Services R&D Fellowships and Training (13.225)
Nurse Training Improvement (13.359)
Regional Nurse Programs (------)
Schools of Public Health Grants (13.370)
Crippled Children's Services (13.211)
Dental Health of Children (13.212)
Family Planning Training (13.260)
Health Care of Children and Youth (13.218)
Intensive Infant Care Projects (13.230)
Maternal and Child Health Services (13.232)
Maternal and Child Health Training (13.233)
Maternal and Infant Care Projects (13.234)
Allergy and Infectious Diseases (Traineeships) (13.855-13.858)
Arthritis, Metabolism and Digestive Diseases (Traineeships) (13.846-13.849)
Cancer Research Manpower (Traineeships) (13.398)
Child Health and Human Development (Traineeships) (13.864-13.866)
Dental Research (Traineeships) (13.840-13.845)
Environment Health Sciences (Traineeships) (13.872-13.876)
Eye Research (Traineeships) (13.867-13.871)
General Medical Sciences (Traineeships) (13.858-13.863)
Heart and Lung Research (Traineeships) (13.837-13.839)
Medical Library Training Grants (13.353)
Neurological Diseases and Stroke (Traineeships) (13.851-13.854)
Animal Resources Training Grants (13.368)
Minority Schools Biomedical Support (13.375)
Handicapped Deaf-Blind Centers (13.445)
Handicapped Physical Education Training (13.448)
Handicapped Regional Resource Centers (13.450)
Handicapped Teacher Education (13.451)
Special Programs--Learning Disabilities (13.520)
EPDA Educational Leadership (13.514)

Media Specialists (13.508)
Pupil Personnel Specialists (13.509)
Urban/Rural School Development (13.505)
EPDA Special Education (13.417)
EPDA Staff Training (13.425)
Teacher Corps (13.489)
Teacher Training in Developing Institutions (13.507)
Training Teacher Trainers (13.490)
Vocational Personnel Awards (13.532, 13.525-13.530)
College Teacher Fellowships (13.407)
Library Training Grants (13.468)
Adult Teacher Education (13.402)
EPDA Career Opportunities (13.421)
Environmental Education (13.522)
UAF Demonstration Facilities and Training (13.760)
Comprehensive Social and Rehabilitation Training (13.758)
Rehabilitation Services and Facilities--Special Projects (13.746)

Department of Justice

Organized Crime Prosecutorial Training (16.512)

Department of Labor

Manpower R&D Program (17.233)
Manpower R&D Institutional Grants (17.219)
Manpower R&D Project Grants (17.221)

Department of Transportation

Aviation Education (20.100)

ACTION

Peace Corps Intern Program and Recruitment Program (------)
University Year for ACTION (72.204)

Environmental Protection Agency

Air Pollution Training Grants (66.003)
Water Pollution Control Training Grants (66.421)
Solid Waste Training Grants (66.303)

National Science Foundation

Instructional Improvement (47.019 & 47.032)

C. Construction Aid

Department of Commerce

Economic Development (11.300)

Department of Health, Education, and Welfare

Health Professions Construction Grants (13.340)
Health Professions Loan Guarantees (13.378)
Nursing School Construction (13.369)

D. Other Assistance

Department of Commerce

University Center Program (------)

Department of Defense

Machine Tool Loans (12.001)

Department of Health, Education, and Welfare

Handicapped Media Services (13.446)

II. STUDENT ASSISTANCE

A. Grants and Scholarships and Training

1. Direct to Students

Department of Defense

Civil Defense Staff College Student Expense (12.314)

Department of Health, Education, and Welfare

Special Fellowships in Nursing Research (13.360)
Vocational Rehabilitation for Social Security Disability Beneficiaries (13.747)

Department of Justice

Law Enforcement Assistance--Narcotics and Drug Training (16.004)
Law Enforcement Assistance--FBI Advanced Police Training (16.300)
Law Enforcement Assistance--FBI Field Police Training (16.302)

Department of the Treasury

Tax Information and Education (21.003)

Environmental Protection Agency

Water Pollution Control--Direct Training (66.417)
Water Pollution Control--Research Fellowships (66.406)

National Science Foundation

Graduate Fellowship Programs (47.009)

Veterans' Administration

Education and Training of Health Service Personnel (64.003)
Vocational Rehabilitation for Disabled Veterans (64.116)

2. Through Institutions

Department of Defense

U.S. Merchant Marine Academy (11.507)
State Marine Schools (11.506)

Department of Defense

ROTC (------)
Service Academies (------)

Department of Health, Education, and Welfare

Mental Health Fellowships (13.241)
Mental Health Training Grants (13.244)
Occupational Safety and Health Training Grants (13.263)
Food Research Training Grants (13.104)
Radiological Health Training Grants (13.106)
Associated Health Professions--Traineeship Grants (13.303)
Associated Health--Special Programs (------)
Family Medicine Training Grants (13.379)
Health Professions Scholarships (13.341)
Health Professions Teacher Training (13.385)
Health Services R&D Fellowships and Training (13.225)
Nurse Scientist Graduate Training Grants (13.262)
Nursing Scholarships (13.363)
Professional Nurse Traineeships (13.358)
Professional Public Health Personnel Traineeships (13.366)
Allergy and Infectious Diseases (Fellowships and Traineeships) (13.855-13.858)
Arthritis, Metabolism and Digestive Diseases (Fellowships and Traineeships) (13.846-13.849)
Cancer Research Manpower (Fellowships and Traineeships) (13.398)
Child Health and Human Development (Fellowships and Traineeships) (13.864-13.866)
Dental Research (Fellowships and Traineeships) (13.840-13.845)
Environmental Health Sciences (Fellowships and Traineeships) (13.872-13.876)
Eye Research (Fellowships and Traineeships) (13.867-13.871)
General Medical Sciences (Fellowships and Traineeships) (13.858-13.863)
Heart and Lung Research (Fellowships and Traineeships) (13.873-13.839)
Medical Library Training Grants (13.353)
Neurological Diseases and Stroke (Fellowships and Traineeships) (13.851-13.854)
Animal Resources Fellowships (13.367)
Animal Resources Training Grants (13.368)
Alcohol Training Programs (13.274)
Drug Abuse Training Programs (13.280)
Handicapped Physical Education Training (13.448)
Handicapped Teacher Education (13.451)
EPDA Educational Leadership (13.514)
Media Specialists (13.509)
Pupil Personnel Specialists (13.509)
EPDA Special Education (13.417)
EPDA Staff Training (13.425)
Training of Teacher Trainers (13.490)

Vocational Personnel Awards (13.503)
College Teacher Fellowships (13.407)
EPDA Higher Education Fellowships (13.462)
EPDA Career Opportunities (13.421)
Comprehensive Social and Rehabilitation Training (13.758)
Rehabilitation Services and Facilities Special Projects (13.763)

Department of the Interior

Mine Health and Safety Education and Training (15.305)
Mineral Resources and Environmental Development (15.303)

Department of Justice

Law Enforcement Assistance--Internships (16.512)
Law Enforcement Assistance Training (16.513)
Law Enforcement Education Program--Student Aid (16.504)
Law Enforcement R&D Fellowships (16.505)

Department of Labor

Manpower Research--Doctoral Research (17.218)

ACTION

Peace Corps Intern Program and Recruitment Program (------)

Atomic Energy Commission

Nuclear Science and Technology Graduate Training (24.020)

Environmental Protection Agency

Air Pollution Fellowships (66.002)
Air Pollution Manpower Training Grants (66.003)
Radiation Training Grants (66.201)

National Science Foundation

Instructional Improvement (47.019 & 47.032)

B. Loans

Department of Health, Education, and Welfare

Health Professions Student Loans (13.342)
Nursing Student Loans (13.364)

III. SUPPORT TO STATES, LOCAL GOVERNMENTS AND OTHERS

Department of Defense

Civil Defense Education (12.323)

Department of Health, Education, and Welfare

Emergency Health Community Preparedness (13.214)
Special Programs for the Aging (13.756)
Training Public Health Workers (13.203)
Educationally Deprived Children, Handicapped (13.427)
Handicapped Early Childhood Assistance (13.444)

EPDA--Professional Personnel for States (13.504)
Vocational Education Basic Grants to States (13.493)
Vocational Education Consumer and Homemaking (13.494)
Vocational Education Cooperative Education (13.495)
Vocational Education Curriculum Development (13.496)
Vocational Education Special Needs (13.499)
Vocational Education Work-Study (13.501)
Bilingual Education Training (------)
Educationally Deprived Children LEA's (13.428)
Educationally Deprived Children, Migrants (13.429)
Educationally Deprived Children in State Institutions (13.431)
Follow Through (13.433)
Civil Rights Technical Assistance and Training (13.405)
Rehabilitation Services and Facilities--Basic Support (13.746)

Department of Housing and Urban Development

Community Development Training Grants (14.202)

Department of the Interior

Indian Community Development (15.104)
Indian Employment Assistance (15.108)
Indian Law Enforcement Services (15.131)

Department of Labor

Concentrated Employment Program (17.204)
Job Corps (17.211)
Public Employment Program (17.229)
Work Incentive Program (17.226)
MDTA Institutional Training (17.215)
Occupational Safety and Health (17.500)

Department of Transportation

Urban Mass Transportation Training (20.503)

Appalachian Regional Commission

Vocational and Technical Demonstration Grants (23.016)
Vocational Education Facilities (23.012)

Civil Service Commission

Interpersonnel Grants (27.012)

FEDERAL GOAL: RECURRENT EDUCATION

I. INSTITUTIONAL SUPPORT

A. General Institutional Support

Department of Defense

Civil Defense Staff College (------)

Department of Health, Education, and Welfare

Special Schools (------)

District of Columbia Government

Federal Support for D.C. Postsecondary Education (------)

B. Categorical Aid

Department of Agriculture

Cooperative Extension Service (10.500)

Department of Defense

Civil Defense University Extension (12.320)

Department of Health, Education, and Welfare

Alcohol Training Programs (13.274)
Drug Abuse Training Programs (13.280)
Mental Health Training (13.244)
Occupational Safety and Health Training Grants (13.263)
Associated Health Professions Special Improvement Grants (13.377)
Comprehensive Health Training (13.208)
Dental Health Continuing Education Training (13.320)
Graduate Training in Public Health (13.338)
Health Services R&D--Fellowships and Training (13.225)
Nurse Training Improvement (13.359)
Nursing Professions Talent Utilization (13.387)
Family Planning Services Training (13.260)
Handicapped Regional Resource Centers (13.450)
Handicapped Teacher Education (13.451)
Special Programs--Learning Disabilities (13.520)
EPDA Educational Leadership (13.514)
Media Specialists (13.508)
Pupil Personnel Specialists (13.509)
Urban/Rural School Development (13.505)
EPDA Special Education (13.417)
EPDA Staff Training (13.425)
Teacher Corps (13.489)
Teacher Training in Developing Institutions (13.507)
Training of Teacher Trainers (13.490)
Vocational Personnel Awards (13.503)
Right to Read (13.533)
Comprehensive Social and Rehabilitation Training (13.758)

Department of the Interior

Indian Agricultural Extension (15.101)

Department of Justice

Law Enforcement Assistance--Educational Development (16.511)

National Science Foundation

Science Education Materials and Methods (47.020-47.033)

C. Construction Aid

No programs found

D. Other

Department of Health, Education, and Welfare

Physical Fitness Clinics (13.617)

National Gallery of Art

Extension Service (68.001)

II. STUDENT ASSISTANCE

A. Grants and Scholarships

1. Direct to Students

Department of Defense

Civil Defense Staff College Student Expense (12.314)
Professional Education (------)

Department of the Interior

Indian Adult Education (15.100)

Department of State

Educational Exchange--University Lecturers (19.102)

Environmental Protection Agency

Water Pollution Control--Direct Training (66.417)

Smithsonian Institution

Academic Appointments (60.002)
Visiting Research Appointments (60.019)
Woodrow Wilson Fellows (60.020)

Veterans' Administration

Career Development (------)

2. Through Institutions

Department of Health, Education, and Welfare

Mental Health Training (13.244)
Occupational Safety and Health Training Grants (13.263)
Associated Health Professions--Traineeship Grants (13.303)
Health Services R&D--Fellowships and Training (13.225)
Professional Nurse Traineeships (13.358)
Professional Public Health Personnel Traineeships (13.366)

Alcohol Training Programs (13.244)
Handicapped Teacher Education (13.451)
EPDA Educational Leadership (13.514)
Media Specialists (13.508)
Pupil Personnel Specialists (13.509)
EPDA Special Education (13.417)
EPDA Staff Training (13.425)
Training of Teacher Trainers (13.490)
Vocational Personnel Awards (13.503)
Foreign Language and Area Fellowships (13.434)
Fulbright-Hays Faculty Research Abroad (13.438)
Comprehensive Social and Rehabilitation Training (13.758)

Department of Justice

Law Enforcement Assistance--Internships (16.513)
Law Enforcement Education--Student Aid (16.504)

Atomic Energy Commission

Faculty and Student Research Participation (24.004)
Nuclear Training--Faculty Training (24.007-24.008)

III. SUPPORT TO STATES, LOCAL GOVERNMENTS AND OTHERS

Department of Defense

Civil Defense Education (12.323)

Department of Health, Education, and Welfare

Disease Control--Laboratory Improvement (13.201)
Emergency Health--Community Preparedness (13.214)
Special Programs for the Aging (13.756)
University Community Service (13.491)
Vocational Education Basic Grants to States (13.493)
Vocational Education Consumer and Homemaking (13.494)
Bilingual Education Training (------)

Department of Housing and Urban Development

Model Cities Grants (14.300)
Community Development Training Grants (14.202)

Department of the Interior

Indian Employment Assistance (15.108)

FEDERAL GOAL: DIVERSITY

I. INSTITUTIONAL SUPPORT

A. General Institutional Support

Department of Health, Education, and Welfare

Health Professions Capitation Grants (13.339)
Nursing Capitation Grants (13.386)

8570

Land Grant Colleges (13.453)
Developing Institutions (13.454)
Special Schools (------)

Department of the Interior

Haskell Junior College (------)

B. Categorical Aid

Department of Agriculture

Cooperation Extension Service (10.500)

Department of Health, Education, and Welfare

Associated Health Professionals Special Improvement Grants (13.377)
Associated Health Professionals Special Project Grants (13.305)
Comprehensive Health Demonstrations (13.208)
Training in Expanded Auxiliary Management (13.319)
Graduate Training--Public Health (13.338)
Health Professions Financial Distress Grants (13.381)
Health Professions Special Projects (13.383)
Health Professions Start-Up and Conversion Grants (13.384)
Health Services R&D, Fellowships and Training (13.225)
Health Services R&D, Grants and Contracts (13.226)
Nurse Training Improvement (13.359)
Nursing Research Project Grants (13.361)
Nursing Schools Financial Distress Grants (13.388)
Regional Medical Programs (------)
Family Planning Research--Services Delivery Improvement (------)
Emergency Medical Services Research (13.285)
Biomedical Scientific Publication Grants (13.349)
Medical Library Resource Grants (13.348)
Medical Library Research Grants (13.351)
Biotechnology Resources (13.371)
Minority Schools Biomedical Support (13.375)
Postsecondary Education Improvement Fund (13.538)
Handicapped Research and Demonstration (13.443)
Teacher Training in Developing Institutions (13.507)
Educational Opportunity Centers (13.418)
Cooperative Education (13.510)
Special Services for Disadvantaged Students (13.482)
Talent Search (13.488)
College Library Resources (13.406)
Higher Education Instruction Equipment (13.518)
Library Research and Demonstration (13.475)
Adult Education Special Projects (13.401)
Vocational Education--Research (13.498)
Fulbright-Hays Group Projects Abroad (13.440)
Educational Broadcasting Facilities (13.413)
Drug Abuse Prevention (13.420)
Environmental Education (13.522)
UAF Demonstration Facilities and Training (13.760)
Developmental Disabilities Special Projects (13.759)

Department of Housing and Urban Development

General Research (14.506)

Department of Labor

Manpower R&D Program (17.233)

Department of State

Central Research (19.007)

Department of Transportation

Airport Development Aid (20.102)

Environmental Protection Agency

Water Pollution Control--R&D (66.405)
Minority Institutions Research Support (------)

National Foundation on the Arts and Humanities

Promotion of the Arts (45.001-45.012)
Promotion of the Humanities (45.102-45.013, 45.015-45.016)

National Science Foundation

Computer Innovation in Education (47.045)
Experimental Research and Development Incentives (47.042)
Instructional Improvement (47.019 & 47.032)
International Cooperative Activities ((47.014)
Public Understanding of Science Programs (47.038)
Science Education Materials and Methods (47.020-47.033)
Science Education Problem Assessment (47.046)
Science Information Activities (47.024-47.025)
Science Activities (47.039)

Smithsonian Institution

Chesapeake Bay Center (60.004)

Veterans' Administration

Exchange of Medical Information (64.004)

C. Construction Aid

Department of Commerce

Economic Development (11.300)

Department of Health, Education, and Welfare

Health Professions Construction Grants (13.340)
Health Professions Loan Guarantees (13.378)
Nursing School Construction (13.458-13.459)
Academic Facilities Interest Subsidy (13.457)

D. Other

Department of Commerce

University Center Program (------)

Department of Health, Education, and Welfare

Surplus Property Utilization (13.606)

Atomic Energy Commission

Nuclear Science and Technology Materials (24.011)

National Gallery of Art

Extension Service (68.001)

II. STUDENT ASSISTANCE

A. Grants and Scholarships

1. Direct to Students

Department of Health, Education, and Welfare

Teacher Exchange (13.437)

Department of Housing and Urban Development

Urban Studies Fellowships (14.217)

National Foundation on the Arts and Humanities

Promotion of the Arts (45.001-45.012)
Promotion of the Humanities (45.102-45.013, 45.015, 45.016)

National Science Foundation

International Travel Program (47.015)

2. Through Institutions

Department of Health, Education, and Welfare

Health Services R&D Fellowships and Training (13.225)
CLEO Fellowships for the Disadvantaged (------)
Foreign Curriculum Consultants (13.439)
Development Disabilities--Special Projects (13.759)

National Science Foundation

Instructional Improvement (47.019-47.032)

III. SUPPORT TO STATES, LOCAL GOVERNMENTS AND OTHERS

Department of Health, Education, and Welfare

EPDA Personnel Development for States (13.504)
Postsecondary Education Statewide Comprehensive Planning Grants (13.550)
Vocational Education Cooperative Education (13.495)
Vocational Education Curriculum Development (13.496)
Vocational Education Innovation (13.502)
Bilingual Education Training (------)

Appalachian Regional Commission

Research, Technical Assistance and Demonstration (23.011)
Vocational and Technical Demonstration Grants (23.016)
Vocational Education Facilities (23.012)

National Science Foundation

Intergovernmental Science (47.036)

FEDERAL GOAL: RESEARCH

I. INSTITUTIONAL SUPPORT

A. General Institutional Support

No programs found

B. Categorical Aid

Department of Agriculture

Basic and Applied Research (10.001)
Contracts and Grants for Scientific Research (10.200)
Cooperative Forestry Research (10.202)
Payments to Agricultural Experiment Stations (10.203)
Rural Development Research (10.204)
Forestry Cooperative Research (10.651)
Forestry Research (10.652)

Department of Commerce

Sea Grant Support (11.417)

Department of Defense

Research and Development (------)

Department of Health, Education, and Welfare

Alcohol Research Development Awards (13.271)
Alcohol Research Program (13.273)
Drug Abuse Research Development Awards (13.277)
Drug Abuse Research Program (13.299)
Mental Health Research Development Awards (13.281)
Mental Health Research Grants (13.242)
Disease Control Research Grants (13.202)
Disease Control--Smoking and Health (13.250)
Disease Control--Venereal Disease (13.205)
Occupational Safety and Health Research Grants (13.262)
Food Research Training Grants (13.104)
Food Research Grants (13.103)
Radiological Health Research Grants (13.105)
Associated Health Special Project Grants (13.305)
Health Services R&D, Fellowships and Training (13.225)
Health Services R&D, Grants and Contracts (13.226)
Nursing Research Project Grants (13.361)

Regional Medical Programs (------)
Family Planning Research--Services Delivery Improvement (------)
Emergency Medical Services Research (13.285)
Maternal and Child Health Research (13.231)
Crippled Children's Services (13.211)
Maternal and Child Health Services (13.232)
Allergy and Infectious Diseases Research Grants (13.855-13.858)
Arthritis, Metabolism and Digestive Diseases Research Grants (13.846-13.849)
Cancer Research Grants (13.393-13.396)
Cancer Research Grants (13.399)
Cancer Research Centers (13.397)
Child Health and Human Development Research Grants (13.864-13.866)
Dental Research (Research Grants) (13.840-13.845)
Environmental Health Sciences (Research Grants) (13.872-13.876)
Eye Research (Research Grants) (13.876-13.871)
General Medical Sciences (Research Grants) (13.858-13.863)
Heart and Lung Research (Research Grants) (13.837-13.839)
Biomedical Communications Research Grants (13.836)
Medical Library Research Grants (13.351)
Medical Library Special Scientific Project Grants (13.352)
Neurological Diseases and Stroke Research Grants (13.851-13.854)
General Clinical Research Centers (13.333)
General Research Support Grants (13.337)
Minority Schools Biomedical Support (13.375)
Postsecondary Education Improvement Fund (13.538)
Handicapped Research and Demonstration (13.443)
Special Programs--Learning Disabilities (13.520)
Library Research and Demonstration (13.475)
Vocational Education--Research (13.498)
Ethnic Heritage Studies (------)
Foreign Languages and Area Studies Centers and Research (13.435-13.436)
Educational Research and Development (13.575)
Drug Abuse Prevention (13.420)
Child Welfare R&D Grants (13.608)
Social Rehabilitation Service Research (13.757)
UAF Demonstration Facilities and Training (13.760)

Department of Housing and Urban Development

General Research (14.506)

Department of the Interior

Mine Health and Safety Research (15.306)
Archeological Investigations (15.908)
Historic America Buildings Survey (15.903)
Additional Water Resources Research (15.950)

Department of Justice

Law Enforcement R&D Grants (16.507)

Department of Labor

Manpower R&D Program (17.233)
Manpower R&D Institutional Grants (17.219)
Manpower R&D Project Grants (17.221)

Department of State

Institutional Centers (19.006)
Central Research (19.007)

Department of Transportation

Program of University Research (20.750)
High Speed Ground Transport R&D (20.300)
Railroad Research (20.302)
Urban Mass Transportation Grants for Research (20.502)

Atomic Energy Commission

Nuclear Science and Technology R&D (24.024)

Environmental Protection Agency

Air Pollution Control Research Grants (66.004)
Environmental Protection Comprehensive Research (66.500)
Pesticides Research (66.502)
Radiation Research Grants (66.503)
Solid Waste Research Grants (66.504)
Water Pollution Control R&D (66.405)
Minority Institutions Research Support (------)

Executive Office of the President

Drug Abuse Prevention, Reserach (73.001)

National Aeronautics and Space Administration

R&D in Space Science (------)

National Science Foundation

Biological Sciences Research Support (47.002)
Computing Activities (47.003)
Engineering Sciences Research (47.006-47.007)
Environmental Sciences Research (47.008)
Experimental Research and Development Initiatives (47.042)
Institutional Grants for Research Management Improvement (47.044)
Institutional Grants for Science (47.012)
International Cooperative Activities (47.014)
International Decade of Ocean Exploration (47.037)
Materials Research (47.040)
Mathematical and Physical Sciences Research (47.016)
Global Atmospheric Research Program (47.017)
National R&D Assessment Program (47.043)
Polar Research Programs (47.001)
Research Applied to National Needs (47.041)
Scientific Activities (47.039)
Social Sciences Research (47.029)

Smithsonian Institution

Chesapeake Bay Center (60.004)
Special Foreign Currency Grants (60.016)

Veterans' Administration

Biomedical Research--Contracts to Universities (64.001)
Prosthetics Research (64.006)

C. Construction Aid

Department of Health, Education, and Welfare

Health Professions Construction Grants (13.340)
Health Professions Loan Guarantees (13.378)
Cancer--Construction (13.392)

National Science Foundation

Oceanographic Facilities and Support (------)

D. Other

Department of Health, Education, and Welfare

Animal Resources (13.306)

National Science Foundation

National Research Centers (------)
Oceanographic Facilities and Support (------)

II. STUDENT ASSISTANCE

A. Grants and Scholarships

1. Direct to Students

Department of Health, Education, and Welfare

Special Fellowships in Nursing Research (13.360)

Department of State

Educational Exchange--University Lecturers (19.102)

Environmental Protection Agency

Water Pollution Control Research Fellowship (66.406)

National Science Foundation

International Travel Program (47.015)

Smithsonian Institution

Academic Appointments (60.002)
Visiting Research Appointments (60.019)
Woodrow Wilson Fellows (60.020)

2. Through Institutions

Department of Health, Education, and Welfare

Mental Health Fellowships (13.241)
Mental Health Research Development Awards (13.281)
Food Research Training Grants (13.104)
Health Services R&D, Fellowships and Training (13.225)
Alcohol Research Development Awards (13.271)
Drug Abuse Research Development Awards (13.277)
Drug Abuse Research Manpower Fellowships (13.278)
Foreign Language and Area Studies Fellowships (13.434)
Fulbright-Hays Faculty Research Abroad (13.438)
Fulbright-Hays Doctoral Research Abroad (13.441)

Department of Justice

Law Enforcement R&D--Fellowships (16.505)

Department of Labor

Manpower Research--Doctoral Research (17.218)

Atomic Energy Commission

Faculty and Student Research Participation (24.004)

National Science Foundation

Undergraduate Student Development (47.034)

III. SUPPORT TO STATES, LOCAL GOVERNMENTS AND OTHERS

Department of the Interior

Indian Community Development (15.104)
Water Resources Research State Assistance (15.951-15.952)

Appalachian Regional Commission

Research, Technical Assistance and Demonstration (23.011)

APPENDIX B: PART II

Issues inherent in PSE goals	Issue dimensions	Needed data categories
I. EQUAL OPPORTUNITY		
A. Equal Access	Who currently enters postsecondary education?	Characteristics of student entrants into the broad range of postsecondary educational options (including proprietary schools, public trade and technical schools, and other options as well as traditional higher education institutions), by the following variables: age race or ethnic group sex some SES background some ability measure some measure of personal or family income
	Who does not enter postsecondary education following high school?	Characteristics of high school graduates not enrolled in postsecondary education following high school, by the variables noted above.
	What are these nonentrants doing instead?	Information about employment (or unemployment) and other possible occupations, such as housewife, etc.
	What were the perceived barriers to equal educational access for these nonentrants?	Personal description of such potential barriers as lack of finances, lack of ability, lack of motivation, lack of availability of a nearby postsecondary school.
	What are the influences of high school curriculum choice, high school dropout, parents and peers on access to postsecondary education?	Postsecondary entrants and nonentrants by high school curriculum studied. Data on characteristics of high school dropouts. Data on persons completing high school equivalency exams and their possible entrance into postsecondary education. Data on group influences on entrance into postsecondary education.
	How do students pay for their education?	Information on sources of support, including who pays for education, other than Federal, State, local, and private funding sources.
	Who enrolls part time?	Characteristics of part-time enrollees, including at least these variables: age, sex, race or ethnic group, other SES background, some measure of personal or family income, some ability measure, high school curriculum, influence of parents, peers, etc.

Issues inherent in PSE goals	Issue dimensions	Needed data categories
A. Equal Access (continued)	What are the reasons the attendee is enrolled part time?	Factors restricting full-time attendance, such as: finances, job, home responsibilities, influences of parents, peers, etc.
	Who are delayed postsecondary education entrants?	Characteristics of delayed entrants, by variables noted above.
	What are the reasons for delayed enrollment?	Factors delaying enrollment, such as: finances, job, home responsibilities, influences of parents, peers, etc.
	What is the impact of financial aid on students directly, and through institutions they attend?	Assessment of the impact of financial aid monies from all agencies providing such funds, including information on funds by type of aid, information on student aid provided by all Federal agencies as a means of breaking the access barrier for disadvantaged students, and information on marginal impact of additional student aid funds in eliminating access barrier.
	Who participates in postsecondary education programs in the military?	Characteristics of servicemen enrolled in both civilian and military postsecondary education programs, by such variables as noted in characteristics of student entrants, including previous education and/or occupational experiences.
	What do these servicemen learn and where?	Types of programs offered and type of programs taken, by types of training categories, by military or civilian institutions, by geographical location or program alternatives, etc.
	What is the national impact of State-promoted equal access?	Data on State-student financial aid should be coordinated at national level.
	What is the impact of migration of students on promoting equal access?	Numbers and student characteristics of out-of-State migration necessary on regular basis, numbers and characteristics of students attending institutions in their own States.
	How can potential State barriers to equal access be identified?	Characteristics and numbers of postsecondary education entrants and nonentrants on a State-by-State basis.

Issues inherent in PSE goals	Issue dimensions	Needed data categories
A. Equal Access (continued)	What has been the impact of equality of student access made by certain types of institutions, e.g., community colleges or open-admission institutions?	Information on geographical availability, costs, curriculum, teachers, etc. which might encourage students to enter postsecondary education at community colleges and other institutions.
	What types of efforts are institutions making to encourage equal access?	Descriptions of special programs, such as remedial education courses, counseling and tutoring facilities, etc., by type of institution offering these services.
Choice	Who is enrolled in postsecondary education at present?	Characteristics as noted in equal access entrants and nonentrants.
	What is the impact of institutional charges on equal choice?	Information on institutional charges to students matched to characteristic statistics on distribution of low-income students at various types of institution, etc.
	What is the impact of Federal financial assistance on choice of institution?	Information on financial aid packages by recipient, types and amounts of aid, etc., and by type of institution, classified by charges to students.
Opportunity	Who does not complete their postsecondary education?	Personal characteristics as noted in equal access entrants and nonentrants, by type of institution they attended, type of programs in which students were enrolled.
	Why don't students complete postsecondary education?	Factors restricting completion, such as: finances, home responsibilities, job, influence of parents, peers, etc.
	At what levels of postsecondary education do students drop out?	Numbers and characteristics of dropouts and those retained from level to level, including full-time and part-time status, sources of support for students in various levels.
	Which students transfer?	Personal characteristics of graduates of 2-year institutions, by field of study, and by institution; personal characteristics of transfers from 4-year institutions, by field of study, and by institution. Personal characteristics of other students who transfer.

Issues inherent in PSE goals	Issue dimensions	Needed data categories
Opportunity (continued)	Why don't students complete postsecondary education?	Factors restricting completion, such as: finances, home responsibilities job, influence of parents, peers, etc.
	At what levels of postsecondary education do students drop out?	Numbers and characteristics of dropouts and those retained from level to level, including full-time and part-time status, sources of support for students in various levels.
	Which students transfer?	Personal characteristics of graduates of 2-year institutions, by field of study; by institution, personal characteristics of transfers from four-year institutions, by field of study, and by institution. Personal characteristics of other students who transfer.
	What are the entrance rates into upper division colleges?	Numbers and personal characteristics of transfer students, by institution, on annual or other regular basis.
	What are the potential barriers to transfer?	Factors restricting transferring, such as: availability of student financial aid, transfer admission requirements, and availability of transfer institutions.
	Who has graduated, as well as who attends, proprietary institutions and other postsecondary education centers providing skill training and career education?	Personal characteristics of attendees and graduates, including type of studies, and by type and control of institution.
	Who drops out of proprietary, skill training, and career education institutions?	Personal characteristics of dropouts, including type of studies, and by type and control of institution, as well as some measurement of skill sufficiency gained by level completed and following employment.
	Who graduates from college?	Personal characteristics as noted under student entrants, including age, race or ethnic group, field of undergraduate study, type and control of institution from which student graduated, and some measure of college achievement (grades, GRE scores, etc.).

Issues inherent in PSE goals	Issue dimensions	Needed data categories
Opportunity (continued)	Who enters graduate and professional schools?	Personal characteristics of entrants, as well as their eventual retention rates, dropout statistics, or final graduation by fields of study, degrees awarded, type of institution.
	Who are minority and disadvantaged graduate and professional entrants and which institutions do they attend?	Personal characteristics, as well as types of financial support, programs taken, some measurement of progress at advanced educational levels, dropout and retention rates.
II. MANPOWER NEEDS		
A. Supply and Demand	What is the impact of undergraduate enrollment pattern shifts on the future supply of college graduates?	Information on causes of enrollment shifts, such as increasingly high cost of attending college, the unfavorable job-market for college graduates, and the increasing tendency for students to defer college attendance for a specific period and return later.
	What do students know about the realities of the world of work?	Information on student perceptions of the labor market and the labor force, and their role in it.
	What types of career education programs are now being offered, and by which postsecondary institutions?	Types of career education programs offered and types of programs taken at postsecondary education institutions of all types, especially community colleges and 4-year institutions.
	What institutions are training students for what types of skills?	Types of training programs matched to types of job skills, by institution, by type and control of institution and by participants.
	What efforts are postsecondary institutions making to provide career counseling and job placement services ?	Information detailing career counseling and job placement services by type of institution.
	How do proprietary schools deal with placement services?	Detailed information on types of services offered by institutions, success rates in placing students, etc.

Issues inherent in PSE goals	Issue dimensions	Needed data categories
Supply and Demand (continued)	What is the U.S. aggregate picture of the future labor force?	Enrollment and graduate data, at undergraduate, graduate, and professional level, by age, and race or ethnic group, as well as by sex and field of study.
	What is the impact of experimental programs on the overall need for manpower training?	More information on open-entry training systems with no prerequisites, on use and effectiveness of training modules and individualized instruction, on ladder approaches and open-exit programs, on cluster training for broad occupational groupings, and on the effectiveness of stipends to make full-time training possible for adults.
	What is the impact of migration of American students abroad and foreign students into the United States in terms of manpower needs?	Regular information on both American and foreign students on personal characteristics, field of study, location and type of institution, reasons behind student migration, and plans for future, in terms of job and geographic location.
	What is the relationship between patterns of employment and various postsecondary education levels?	More information on personal characteristics, curriculum studied, ability, type of institution attended, and level of institution completed; especially information on employment patterns of graduates of 2-year colleges and dropouts from institutions of higher education.
	Are certain degrees really necessary for employment in certain fields?	Information on educational requirements and degrees actually necessary for employment, more detailed information on the way postsecondary institutions orient their educational curriculums to match needed job skills.
	What are the implications of the changing job market for holders of master's degrees and for enrollment in master's programs?	Numbers and characteristics of master's degree holders and candidates by field of study, level of study completed, in relation to type of job desired, and actual job vacancies, and future outlook for job desired.
	What competition do graduates face for jobs from others in the job market, including married women entering or reentering the job-market, foreign nationals in the U.S., and senior citizens seeking part-time or volunteer work?	What jobs currently utilize what kind and what degree of training, and who fills the job; characteristics of the competing labor market, including married women entering or reentering the job market, foreign nationals in the U.S., and senior citizens seeking part-time or volunteer employment.

Issues inherent in PSE goals	Issue dimensions	Needed data categories
Supply and Demand (continued)	What is the future of the current labor market situation of college graduates?	Predictions necessary by individual occupation over relatively long-term period; timely release of needs is important.
Specific Manpower Needs	What is the effectiveness of various types of skill training?	Information using variables such as length of training, location of training, and results in terms of productive long-term employment for the recipient.
	What are the results of exemplary training programs?	Statistics which describe the programs sufficiently so that similar programs can either be duplicated or eliminated according to the success or failure of the exemplary program.
	How can the Federal Government improve its own skill training programs, as well as provide assistance to States for improvement of their programs?	Information needed on student behavior characteristics which describes, among other variables: how students learn about work attitudes, how students learn about human relations skills, how students learn about orientation to the nature of the working world, alternative career choices, and students' actual acquisition of specific work skills.
	How can the Federal Government best count students enrolled in occupational programs?	Development of more accurate definition of enrollment in occupational programs, and expansion of statistics to include changes in enrollments by field of study.
	What are the projections of needs for the many kinds of special teachers now receiving training support from the Federal Government?	Revised estimates of future demands for teachers, that consider the growing demand for preschool teachers and for teachers in other settings, such as adult education programs.
	Do manpower shortages actually exist, and are training programs filling such shortages?	Statistical information which demonstrates whether or not manpower shortages exist, and whether training programs do fill such shortages.

Issues inherent in PSE goals	Issue dimensions	Needed data categories
III. RECURRENT EDUCATION	What is the demand for recurrent education by adults?	Statistics which will enable policymakers to estimate demand, such as numbers of adults currently enrolled in recurrent education programs, types of training programs provided, types of needed skills.
	Who is not enrolled in recurrent education who wishes to be?	Personal characteristics of those persons wishing to be enrolled.
	What are the barriers to participation in recurrent education?	Factors restricting participation, such as: costs of courses, time of courses, geographical location of courses, availability.
	In what ways do adults of different age groups want to learn?	Information on learning environments, such as: do adults learn well in unstructured environments? where do recurrent education courses take place: home, classroom, other? times at which courses are provided: night, weekend, etc. method of instruction: correspondence, lecture, other.
	What is being studied by adults and for what purpose?	Types of courses offered to adults, and types of courses taken by adults; by reasons, such as upgrading skills, self-improvement, or new learning.
	How do adults pay for their courses?	Statistics which describe what portion of these charges are paid by student, by employers, or by others.
	What is the role of the community college in providing recurrent education?	Statistics on what efforts community colleges have made toward recurrent education; on what students, by personal characteristics, are attending recurrent education courses at community colleges; on what recurrent education courses are being offered at community colleges; on what techniques community colleges use to inform the public about recurrent education.
	What is the role of other types of postsecondary institutions?	Similar statistics as mentioned above for community colleges, as well as data on educational structures in the system through which courses are offered (separate colleges within universities, in off-campus centers, etc.).

Issues inherent in PSE goals	Issue dimensions	Needed data categories
Recurrent Education (continued)	What kinds of jobs are likely to require the retraining of persons over time?	Data on the kinds of jobs likely to require further upgrading of skills.
	When is the need for such retraining likely to occur during a person's career?	Information on the kinds of jobs needing further training, by levels of jobs, and by personal characteristics of persons employed.
	What are innovative approaches to recurrent education and what is their impact on learning?	Description of innovative approaches to recurrent education, including statistics describing how they work, what their impact is on learning, motivation, and absorption of education by students.
IV. EDUCATIONAL DIVERSITY		
A. New Students and New Education	Who are the "new" students in postsecondary education?	Personal characteristics of "new" students, similar in kind to those for entrants mentioned under Equal Opportunity, especially, ability measures and motivational data; also, information on career expectations, and their impact on choice of field of study.
	What is the new student demand for nontraditional and innovative forms of education?	Information on what fields of study and what courses new students are taking, on the characteristics of students who prefer to study in new and innovative educational programs.
	What kind of new education is being offered?	Information from the institutions on the extent of the use of new degrees in postsecondary education, including what schools are awarding these degrees, and who is receiving them; information on experiments with shorter times for degrees at all levels, etc.
	Which institutions are offering what types of new educational programs?	Numbers and names of postsecondary institutions by varieties of curriculum offerings, varieties of institutional size and administration, and varieties of teaching methods.
	What is the impact of using exams for credit or degrees?	Information on the use of exams (such as CLEP) for credit or degrees, by number and characteristics of people taking such exams, and by which schools accept them.

Issues inherent in PSE goals	Issue dimensions	Needed data categories
New Students and New Education (continued)	What is the impact of institutional consortia arrangements?	Numbers and characteristics of consortia arrangements, including methods of operation, extent of shared facilities, faculties, students, computers, etc.; also information on Federal programs encouraging such arrangements, including the Developing Institutions and Ethnic Heritage Studies programs.
	What are the success and failure rates of innovative educational institutions?	Information on new school openings and closings, on innovative programs expanded and discontinued, etc.
	How is the noncollegiate sector of postsecondary education affected by innovative educational programs?	Data by personal characteristics of new students in the noncollegiate sector (as mentioned under Equal Educational Opportunity), distribution of students, and changes in enrollment levels.
	What is the extent of the postsecondary institutions not yet eligible for participation in Federal programs?	Information on where such schools are located, how many exist, what courses of study they offer, what their basic characteristics are, and numbers of students attending them.
B. Preserving Institutional Diversity	What is the impact of institutional "financial distress" on institutional diversity?	Improved data on institutional finances; better measures of "financial distress," including numbers of institutional closings and mergers, by type and control of institution, changes in enrollment patterns by type and control of institution, identification of key institutional income and expenditure components, "tuition gap" data, frequency and size of reported operating deficits, and substantial changes in plant assets and institutional indebtedness.
	What is the financial impact of enrollment changes in assessing financial stability?	Information on the nature and size of enrollment, including enrollment counts directly related to tuition and fee income which show net gains or losses over the academic year.
	What is the productivity of educational institutions, and what is the quality of their outputs?	Data including at least these three variables: institutional salaries, institutional costs per student, student scores on tests such as GRE.

Issues inherent in PSE goals	Issue dimensions	Needed data categories
B. Preserving Institutional Diversity (continued)	How can institutions provide better data in the area of cost effectiveness?	Information on quality of educational output, need for uniform procedures for reporting per-student cost.
V. RESEARCH	What is the impact of Federal research funds on colleges and universities?	Data which describe how institutions conduct federally-funded research, including cost of research (both Federal and institutional funds), personal characteristics of those working on research, characteristics of research facilities and their location, and administrative structure of research activities within the institution.
	What is the impact of Federal research funds on faculty?	Information on relevant characteristics, including such variables as: percent of faculty time spent in research versus teaching, field of expertise, relationship of research to subject taught, and data on salaries paid from research funds.
	What is the impact of Federal research funds on students?	Information on numbers and personal characteristics of students participating in research projects at colleges and universities, including: numbers of students, by personal characteristics and field and level of study, receiving financial support from research monies, and data describing how and what students learn through participation in projects.
	What are the costs of Federal research to institutions?	Information including contributed equipment value, faculty time, income received by institutions, etc.
	What is the effect of Federal funding fluctuations on institutions?	Information on institutions, by type, control, and field of study; also identification of projected trends of scientific and technological fields that would include probable national needs for scientific resources, and expected levels of Federal support in the various areas.

Issues inherent in PSE goals	Issue dimensions	Needed data categories
Research (continued)	How are colleges and universities responding to multidisciplinary research needs?	Data needed on types of innovative organizational and functional arrangements currently in operation at various institutions.

602

APPENDIX C

NCES DATA-COLLECTION INSTRUMENTS AND REPORTS REVIEWED

NCES DATA-COLLECTION INSTRUMENTS

AND REPORTS REVIEWED

1. Continuing Education: Noncredit Activities in Institutions of Higher Education, 1967-68, Professional and Technical Refresher Courses
2. Continuing Education: Noncredit Activities in Institutions of Higher Education, Registrations 1967-68
3. Degrees and Other Formal Awards Conferred Between July 1, 1971 and June 30, 1972
4. Degrees and Other Formal Awards Conferred Between July 1, 1972 and June 30, 1973
5. Employees in Institutions of Higher Education, 1972-73
6. Financial Statistics of Institutions of Higher Education for Fiscal Year Ending 1972
7. Financial Statistics of Institutions of Higher Education for Fiscal Year Ending 1974
8. Higher Education: A Taxonomy of Instructional Programs in Higher Education
9. Higher Education Basic Student Charges (1968-69)
10. Higher Education: Earned Degrees Conferred, 1969-70, Summary Data
11. Higher Education: Fall Enrollment in Higher Education, 1971
12. Higher Education: Financial Statistics of Institutions of Higher Education: Federal Funds 1965-66 and 1966-67
13. Higher Education: Institutions of Higher Education, Index by State and Congressional District, June 1973
14. Higher Education: Inventory of Physical Facilities in Institutions of Higher Education, Fall 1969
15. Higher Education: Number and Characteristics of Employees in Institutions of Higher Education, Fall 1967
16. Higher Education: Residence and Migration of College Students, Analytic Report
17. Higher Education: Teaching and Research Staff by Academic Field in Institutions of Higher Education, Fall 1968
18. Indicators of Educational Outcome, Fall 1972
19. Inventory of College and University Physical Facilities (as of September 30, 1974)

20. Junior-Year Science, Mathematics, and Foreign Language Students, First-Term 1962-63 (Higher Education)

21. National Assessment of Educational Progress, Age Class III

22. National Longitudinal Study of the High School Class of 1972:

    Student Questionnaire
    School Questionnaire
    Counselor Questionnaire
    Student's School Record Information
    First Followup Survey
    Capsule Description of High School Seniors Base-Year Survey
    First Followup Questionnaire, Form A (Fall 1973)
    Survey Instrument for the Second Followup (July 1974)

23. Opening Fall Enrollment in Higher Education, 1974

24. Opening Fall Enrollment in Higher Education: Part A--Summary Data

25. Postsecondary Career School Survey, 1973

26. Postsecondary School Enrollment Survey, 1974

27. Projections of Educational Statistics to 1981-82 (1972 edition)

28. 1973-74 Education Directory

29. Salaries and Tenure of Full-Time Instructional Faculty, 1974-75

30. Students Enrolled for Advanced Degrees, Fall 1972

31. Students Enrolled for Advanced Degrees, Fall 1974

32. Survey of High School Seniors and Recent Graduates, 1974

33. Survey of Programs and Enrollments, Postsecondary Schools

34. Vocational Education: Directory of Postsecondary Schools with Occupational Programs, 1971 (Public and Private)

35. Vocational Education: Inventory of Vocational Education Statistics Available in Federal Agencies

36. Characteristics of Students and Staff, 1972, Vocational Education

NCES did not provide the College Entrance Examination Board with copies of the following two documents:

(1) Resident and Extension Enrollment in Institutions of Higher Education, First Term, 1969.

(2) Characteristics of Vocational Education Teachers and Students.

APPENDIX D: NONOPERATIVE PROGRAMS

The College Entrance Examination Board, as part of the overall study conducted under OE-NCES Contract No. 74-2126, was asked to compile a list of nonoperative Federal programs in postsecondary education. To begin this task, the project staff met with the Office of Education Budget Office and listed nonoperative programs within the Office of Education. That list of programs is attached.

As the next step, the project staff sought to compile similar lists for other Federal agencies which administered postsecondary programs. It soon became apparent that this was going to be a difficult task. Postsecondary education programs operated by many Federal agencies, such as research grants and special training programs, are relatively incidental to the major purposes and functions of those agencies. As such the legislative authorization for these programs is often buried in broad legislation, such as the Foreign Assistance Act of 1966 (AID programs) and the Snyder Act of 1921 (Indian higher education grants).

While the various agencies could provide legislative references for their operating postsecondary education programs, they were not willing to search through vast amounts of potentially relevant legislation for authorizations of programs not in operation. They had neither the time nor the staff to complete the involved and complex legal research which would be necessary.

Faced with this dilemma, the project staff searched for other sources which might provide the needed information on nonoperative programs. One such possible source which was investigated thoroughly was an Air Force-sponsored computer system known as LITE (Legal Information Through Electronics). This computer system, administered in Denver, Colorado, contained the U.S. Code indexed by key words. Theoretically, one could query this system about existing legislation pertinent to postsecondary education. In fact, however, the LITE system was not current and did not include legislation passed after 1972. Air Force officials agreed that LITE would not be suitable for our purposes.

Conversations with the Harvard University Law Library staff led us to an additional source. A private company, Mead Data Central, also maintains a legal research system which operates similarly to the Air Force LITE system. Called LEXIS, the Mead Data Central system is designed to retrieve legal information by use of key word identifiers. It includes the entire U.S. Code (to mid-1973), indexed by these identifiers. The project staff met with Mead Data Central representatives to discuss possible use of this system. However, a demonstration of the system's capabilities indicated to us and to Mead representatives that LEXIS was not appropriate to the task at hand. Key words could not be found within the LEXIS system which could recall the relevant legislation from the U.S. Code.

The Office of Management and Budget maintains a file of legislation names and expiration dates. We were not permitted to examine this file, but OMB personnel made available to us a listing of legislative titles. This list did not prove useful because it did not specify programs within legislative titles. It was impossible to decipher whether or not an education program might be authorized as a part of a law which was directed basically to other purposes.

Upon consultation with representatives from NCES about these difficulties in compiling a list of nonoperative programs outside the Office of Education, the College Board and NCES agreed not to pursue these efforts further. It should be noted that the Compilation of Postsecondary Education Programs, completed as part of this study, includes the legislative references for all operating programs in all Federal agencies. This compilation also includes (in appendix A) a list of those programs which have ceased operation since fiscal year 1972 for various reasons. As noted earlier, a list of nonoperative programs within the Office of Education was prepared. It is presented below.

Nonoperative Postsecondary Education Programs in the Office of Education

Community Service and Continuing Education Programs--Special Programs and Projects Relating to Problems of the Elderly.

Cost of Education Payments to Institutions of Higher Education.

Work-Study for Community Service Learning Program.

Grants for Construction of Graduate Academic Facilities.

Direct Loans for Construction of Academic Facilities.

Networks for Knowledge.

Graduate Program Grants to Institutions of Higher Education.

Public Service Fellowships.

General Assistance to Graduate Schools.

State Plans for Establishment and Expansion of Community Colleges.

Establishment and Expansion of Community Colleges.

Occupational Education Programs.

Emergency Assistance for Institutions of Higher Education.

Special Adult Education Project for the Elderly.

Grants Programs for Advanced and Undergraduate International Studies.

Law School Clinical Experience Programs.

BIBLIOGRAPHY

American Council on Education. Financing Part-Time Students: The New Majority In Postsecondary Education. Washington, D.C.: Committee on the Financing of Higher Education for Adult Students, 1974.

Belitsky, A. Harvey. Private Vocational Schools: Their Emerging Role in Post-secondary Education. Washington, D.C.: The W. E. Upjohn Institute for Employment Research, 1970.

Carnegie Commission on Higher Education. A Chance to Learn: An Action Agenda for Equal Opportunity in Higher Education. New York: McGraw-Hill, March 1970.

_____. College Graduates and Jobs: A Report and Recommendations. New York: McGraw-Hill, April 1973.

_____. Less Time, More Options: Education Beyond the High School. New York: McGraw-Hill, January 1971.

_____. The More Effective Use of Resources: An Imperative for Higher Education. New York: McGraw-Hill, June 1972.

_____. The Open-Door Colleges: Policies for Community Colleges. New York: McGraw-Hill, June 1970.

_____. Priorities for Action: Final Report of the Carnegie Commission on Higher Education. New York: McGraw-Hill, 1973.

_____. The Purposes and Performance of Higher Education in the United States. New York: McGraw-Hill, June 1973.

_____. Reform on Campus: Changing Students, Changing Academic Programs. New York: McGraw-Hill, June 1972.

_____. Toward a Learning Society: Alternative Channels to Life, Work, and Service. New York: McGraw-Hill, October 1973.

The Chronicle of Higher Education, Vol. IX, No. 1. September 23, 1974.

College Entrance Examination Board. The New York Times Guide to Continuing Education in America. New York: Quadrangle Books, 1972.

Committee for Economic Development. The Management and Financing of Colleges. New York, 1973.

Financing Equal Opportunity in Higher Education. New York: College Entrance Examination Board, 1970.

Folger, John K., Helen S. Astin, and Alan E. Bayer. Human Resources and Higher Education. New York: Russell Sage Foundation, 1970.

Godwin, W. L. and P. B. Mann, eds. Higher Education: Myths, Realities, and Possibilities. Atlanta, Ga.: Southern Regional Education Board, November 1972.

Hall, Lawrence and Associates. New Colleges for New Students. San Francisco: Jossey-Bass, 1974.

Harris, Seymour E., ed. Education and Public Policy. Berkeley, Cal.: McCutchen Publishing Corp., 1965.

Hesburgh, Theodore M., Paul A. Miller, and Clifton R. Wharton, Jr. Patterns for Lifelong Learning. San Francisco: Jossey-Bass, 1973.

Mayhew, Lewis B. Higher Education for Occupations. Atlanta, Ga.: Southern Regional Education Board Monograph No. 20, 1974.

McClure, Larry and Carolyn Buan, eds. Essays on Career Education. Portland, Ore.: Northwest Regional Educational Laboratory, April 1973.

Moses, Stanley. The Learning Force: A More Comprehensive Framework for Educational Policy. Syracuse, New York: Syracuse University Occasional Papers in Continuing Education, No. 25, October 1971.

Mushkin, Selma J., ed. Recurrent Education. Washington, D.C.: U.S. Department of Health, Education, and Welfare, National Institute of Education, 1974.

National Advisory Council on Extension and Continuing Education. A Question of Stewardship, A Study of the Federal Role in Higher Continuing Education. (6th Annual Report and Recommendations). Washington, D.C.: 1972.

National Commission on the Financing of Postsecondary Education. Financing Postsecondary Education in the United States. Washington, D.C.: Government Printing Office, 1973.

National Science Foundation. Federal Funds for Research, Development and Other Scientific Activities, Fiscal Years 1971, 1972, and 1973. Washington, D.C.: Government Printing Office, 1972

Orlans, Harold. The Nonprofit Research Institute: Its Origin, Operation, Problems, and Prospects. New York: McGraw-Hill, 1972

Report of the Committee on Student Economics. New York: College Entrance Examination Board, 1972.

Report on Higher Education: The Federal Role, Data and Decisionmaking in Postsecondary Education. Washington, D.C.: Special Task Force to the Secretary of Health, Education, and Welfare, March 1973.

The Second Newman Report: National Policy and Higher Education. (Report of a Special Task Force to the Secretary of Health, Education, and Welfare.) Cambridge, Mass.: The MIT Press, 1973.

Toward Equal Opportunity for Higher Education. (Report of the Panel on Financing Low-Income and Minority Students in Higher Education.) New York: College Entrance Examination Board, 1973.

U.S. Congress. Senate. Report No. 93-1026, Education Amendments of 1974. 93rd Cong. 2nd sess., Washington, D.C.: Government Printing Office, 1974.

U.S. Department of Health, Education, and Welfare, Office of Education, Office of Planning, Budgeting, and Evaluation. Evaluation Overview: Postsecondary Division, FY 74. Washington, D.C.: unpublished.

Vermilye, D. W., ed. The Future in the Making: Current Issues in Higher Education, 1973. San Francisco: Jossey-Bass, 1973.

Venn, Grant, "Man, Education and Work" in Mangum, Garth L., ed. The Manpower Revolution. New York: Doubleday and Co. Inc., 1966.

Willingham, Warren W. The No. 2 Access Problem: Transfer to the Upper Division. Washington, D.C.: ERIC Clearinghouse on Higher Education, July 1972.

_____. The Source Book for Higher Education. New York: College Entrance Examination Board, 1973.

Wolfle, Dael L. The Home of Science: The Role of the University. New York: McGraw-Hill, 1972.